A1-F18AC-740-100

1 NOVEMBER 2001

CHANGE 1 - 1 JUNE 2002

TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE
PRINCIPLES OF OPERATION

WEAPON CONTROL SYSTEMS

NAVY MODEL
F/A-18A AND F/A-18B
161353 AND UP

N68936-01-D-0007

This volume is one of two volumes and is incomplete without A1-F18AC-740-110.

This volume contains WP 001 00 thru WP 049 00.

DISTRIBUTION STATEMENT C. Distribution authorized to U.S. Government agencies and their contractors to protect publications required for official use or for administrative or operational purposes only, determined on 1 September 1987. Other requests for this document shall be referred to Commanding Officer, Naval Air Technical Data and Engineering Service Command, Naval Air Station North Island, P.O. Box 357031, Building 90 Distribution, San Diego, CA 92135-7031.

DESTRUCTION NOTICE. For unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.

PUBLISHED BY DIRECTION OF COMMANDER, NAVAL AIR SYSTEMS COMMAND

0801LP1018101

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES

List of Current Changes

Original 0 . . . . . 1 Nov 2001 Change 1 . . . . . 1 Jun 2002

Only those work packages/pages assigned to the manual are listed in this index. Insert Change 1, dated 1 June 2002. Dispose of superseded and deleted work packages/pages. Superseded and deleted classified work packages/pages shall be destroyed in accordance with applicable regulations. If changed pages are issued to a work package, insert the changed pages in the applicable work package. The portion of text affected in a changed or revised work package is indicated by change bars or the change symbol "R" in the outer margin of each column of text. Changes to illustrations are indicated by pointing hands or change bars, as applicable.

WP Number	Title
	Volume 1
Title	
Page A	Numerical Index of Effective Work Packages/Pages
TPDR	List of Technical Publications Deficiency Reports Incorporated
001 00	Alphabetical Index
001 01	Deleted
002 00	Introduction
002 01	Abbreviations and Nonstandard Symbols
003 00	Deleted
003 01	Deleted
004 00	Deleted
005 00	Deleted
006 00	Deleted
006 01	Release Consent Operation
006 02	Release Consent Simplified Schematic
Stores Management System	
007 00	Description
008 00	System Functions Description
009 00	System Simplified Schematic
010 00	Related Systems Description
011 00	Related Systems Simplified Schematic
012 00	Controls and Indicators Description
013 00	Controls and Indicators Simplified Schematic
014 00	Locator
015 00	Reference Tables
016 00	Armament MUX Bus Data
017 00	Operation
018 00	Operation Simplified Schematics
019 00	Aircraft Master Mode Select Operation
020 00	Aircraft Master Mode Select Simplified Schematics
021 00	Stores Inventory Operation
022 00	Stores Inventory Simplified Schematic
022 01	Stores Inventory Simplified Schematic (After F/A-18 AFC 253 or F/A-18 AFC 292)
023 00	Weapon Select Operation
024 00	Weapon Select Simplified Schematic
025 00	Master Arm Operation
026 00	Master Arm Simplified Schematic
026 01	Simulation Mode Select Operation
026 02	Simulation Mode Select Simplified Schematic
026 03	Air to Ground Weapon Release Tone Operation
026 04	Air to Ground Weapon Release Tone Simplified Schematic
027 00	Emergency Jettison Operation
028 00	Emergency Jettison Simplified Schematic
029 00	Selective Jettison/Auxiliary Release Operation
030 00	Selective Jettison/Auxiliary Release Simplified Schematic
030 01	Selective Jettison/Auxiliary Release Simplified Schematic (After F/A-18 AFC 253 or F/A-18 AFC 292)
031 00	Launcher/Rack Lock/Unlock Operation
032 00	Launcher/Rack Lock/Unlock Simplified Schematics
032 01	Launcher/Rack Lock/Unlock Simplified Schematics (After F/A-18 AFC 253 or F/A-18 AFC 292)
033 00	Lock/Shoot Light/Shoot Cue Operation
034 00	Lock/Shoot Light/Shoot Cue Simplified Schematic
035 00	External Fuel Tank Operation
036 00	External Fuel Tank Simplified Schematic
037 00	Built-In Test Operation
037 01	Built-in Test Operation (After F/A-18 AFC 253 or F/A-18 AFC 292)
038 00	Built-In Test Simplified Schematic
038 01	Built-in Test Simplified Schematic (After F/A-18 AFC 253 or F/A-18 AFC 292)
039 00	Built-In Test Tables
040 00	Video Switching Operation
041 00	Video Switching Simplified Schematic
041 01	Sensor Control Switch and Throttle Designator Control (TDC) Assignment Operation
041 02	Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified
042 00	Weapon Station Power Control Operation
043 00	Weapon Station Power Control Simplified Schematic
043 01	Weapon Station Power Control Simplified Schematics (After F/A-18 AFC 253 or F/A-18 AFC 292)
044 00	Electrical Fuzing Operation
045 00	Electrical Fuzing Simplified Schematic
045 01	Mechanical Fuzing Operation
045 02	Mechanical Fuzing Simplified Schematic
045 03	Mechanical Fuzing Simplified Schematic (After F/A-18 AFC 253 or F/A-18 AFC 292)
046 00	AIM-9 Sidewinder Operation
047 00	AIM-9 Sidewinder Simplified Schematic
047 01	Weapon Audio Switching Operation
047 02	Weapon Audio Simplified Schematic
047 03	AIM-9 Sidewinder Simplified Schematics (After F/A-18 AFC 253 or F/A-18 AFC 292)

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES (Continued)

WP Number	Title
047 04	Weapon Audio Switching Simplified Schematic (After F/A-18 AFC 253 or F/A-18 AFC 292)
048 00	AIM-7 Sparrow Operation
049 00	AIM-7 Sparrow Simplified Schematic
	Volume 2
Title	
Page A	Numerical Index of Effective Work Packages/Pages
TPDR	List of Technical Publications Deficiency Reports Incorporated
001 00	Alphabetical Index
050 00	Bomb Operation
050 01	Deleted
050 02	Deleted
050 03	Bombing Displays Operation
051 00	Bomb Simplified Schematic
051 01	Multiple Ejector Rack Operation
051 02	Multiple Ejector Rack Simplified Schematic
051 03	Bomb/Mine Program Select Operation
051 04	Bomb/Mine Program Select Simplified Schematic
051 05	Mine Displays Operation
051 06	Deleted
051 07	Mine Operation
051 08	Mine Simplified Schematic
052 00	Deleted
053 00	Guided Weapon Control-Monitor Set AN/AWW-13 Operation
054 00	Guided Weapon Control-Monitor Set AN/AWW-13 Operation
055 00	AGM-45 Shrike
055 01	AGM-45 Shrike Operation
055 02	AGM-45 Shrike Simplified Schematic
056 00	AGM-88 HARM Operation
057 00	AGM-88 HARM Simplified Schematic
058 00	AGM-65 Maverick Operation
058 01	AGM-65 Maverick Simplified Schematic
058 02	AGM-65 Maverick Simplified Schematic (After F/A-18 AFC 253 or F/A-18 AFC 292)
059 00	AGM-84 Harpoon Operation
059 01	AGM-84 Harpoon Simplified Schematic
060 00	Rocket Operation
061 00	Rocket Simplified Schematic
061 01	Data Freeze Display Operation
061 02	Data Freeze Display Simplified Schematic

Suspension and Release Mechanisms

062 00	Description
063 00	Locator
064 00	Pylons and Bomb Ejector Racks Operation
065 00	Pylons and Bomb Ejector Racks Simplified Schematic
066 00	Missile Launcher Operation
067 00	Missile Launchers Simplified Schematics

Electrical Boresight Compensation System

068 00	Principles of Operation
069 00	Locator
070 00	System Simplified Schematic

Advanced Weapons

071 00	AIM-120 AMRAAM Operation
072 00	AIM-120 AMRAAM Simplified Schematic
073 00	AGM-84 SLAM Operation
074 00	AGM-84 SLAM Simplified Schematic
075 00	AGM-84H SLAM ER Operation
076 00	AGM-84H SLAM ER Simplified Schematic
077 00	AGM-154 JSOW Operation
078 00	AGM-154 JSOW Simplified Schematic
079 00	GBU-31 JDAM Operation
080 00	GBU-31 JDAM Simplified Schematic

Total number of pages in this manual is 768, consisting of the following:

WP/Page Number	Change Number
Volume 1	
Title	1
A - C	1
TPDR-1	1
TPDR-2 Blank	1
001 00	
1 - 3	0
4 Blank	0
001 01 Deleted	
002 00	
1 - 7	1
8 Blank	1
002 01	
1 - 8	0
003 00 Deleted	0
003 01 Deleted	0
004 00 Deleted	0
005 00 Deleted	0
006 00 Deleted	0
006 01	
1 - 2	0
006 02	
1 - 4	0
007 00	
1 - 8	0
008 00	
1 - 13	0
14 Blank	0
009 00	
1 - 22	0
010 00	
1	1
2 - 3	0
4	1
5 - 10	0
011 00	
1 - 9	0
10 Blank	0
012 00	
1 - 16	0
013 00	
1 - 15	0
16 Blank	0
014 00	
1 - 35	0
36 Blank	0
015 00	
1	1
2	0
3	1
4 - 31	0
32 Blank	0
015 01 Deleted	0
015 02 Deleted	0
016 00	
1 - 20	0

NUMERICAL INDEX OF EFFECTIVE WORK PACKAGES/PAGES (Continued)

WP/Page Number	Change Number
017 00	
1 - 3	0
4 Blank	0
018 00	
1 - 16	0
019 00	
1 - 15	0
16 Blank	0
020 00	
1 - 12	0
021 00	
1 - 11	0
12 Blank	0
022 00	
1 - 10	0
022 01	
1 - 9	0
10 Blank	0
023 00	
1 - 11	0
12 Blank	0
024 00	
1 - 6	0
025 00	
1 - 9	0
10 Blank	0
026 00	
1 - 5	0
6 Blank	0
026 01	
1 - 8	0
026 02	
1 - 3	0
4 Blank	0
026 03	
1 - 4	0
026 04	
1 - 4	0
027 00	
1 - 3	0
4 Blank	0
028 00	
1 - 10	0
029 00	
1 - 12	0
030 00	
1 - 12	0
030 01	
1 - 13	0
14 Blank	0
031 00	
1 - 9	0
10 Blank	0
032 00	
1	1
2 - 8	0
9	1
10 - 13	0
14 Blank	0
032 01	
1 - 16	0
033 00	
1 - 10	0
034 00	
1 - 10	0
035 00	
1 - 4	0
036 00	
1 - 5	0
6 Blank	0
037 00	
1 - 16	0
037 01	
1 - 20	0
038 00	
1 - 11	0
12 Blank	0
038 01	
1 - 12	0
039 00	
1 - 10	0
040 00	
1 - 5	0
6 Blank	0
041 00	
1 - 9	0
10 Blank	0
041 01	
1 - 17	0
18 Blank	0
041 02	
1 - 8	0
042 00	
1 - 8	0
043 00	
1 - 11	0
12 Blank	0
043 01	
1 - 12	0
044 00	
1 - 8	0
045 00	
1 - 8	0
045 01	
1 - 9	0
10 Blank	0
045 02	
1 - 8	0
045 03	
1 - 9	0
10 Blank	0
046 00	
1 - 20	0
047 00	
1 - 13	0
14 Blank	0
047 01	
1 - 3	0
4 Blank	0
047 02	
1 - 4	0
047 03	
1 - 16	0
047 04	
1 - 4	0
048 00	
1 - 23	0
24 Blank	0
049 00	
1 - 22	0
Volume 2	
050 00	
050 01 Deleted	
050 02 Deleted	
050 03	
051 00	
051 01	
051 02	
051 03	
051 04	
051 05	
051 06 Deleted	
051 07	
051 08	
052 00 Deleted	
053 00	
054 00	
055 00	
055 01	
055 02	
056 00	
057 00	
058 00	
058 01	
058 02	
059 00	
059 01	
060 00	
061 00	
061 01	
061 02	
062 00	
063 00	
064 00	
065 00	
066 00	
068 00	
069 00	
070 00	
071 00	
072 00	
073 00	
074 00	
075 00	
076 00	
077 00	
078 00	
079 00	
080 00	

LIST OF TECHNICAL PUBLICATIONS DEFICIENCY REPORTS INCORPORATED

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

WEAPON CONTROL SYSTEMS

This WP supersedes TPDR WP, dated 1 November 2001.

1. The TPDRs listed below have been incorporated in this issue.

IDENTIFICATION NUMBER/ QA SEQUENCE NUMBER	LOCATION
09241–94–0012	WP 015 00, pg. 3
32379–02–0156	WP 032 00, pg 9

ALPHABETICAL INDEX

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

WEAPON CONTROL SYSTEMS

Title	WP Number
Advanced Weapons	
Operation-	
AGM-84 SLAM (After F/A-18 AFC 253 or F/A-18 AFC 292)	073 00
AGM-84H SLAM ER (After F/A-18 AFC 253 or F/A-18 AFC 292)	075 00
AGM-154 JSOW (After F/A-18 AFC 253 or F/A-18 AFC 292)	077 00
AIM-120 AMRAAM (After F/A-18 AFC 253 or F/A-18 AFC 292)	071 00
GBU-31 JDAM (After F/A-18 AFC 253 or F/A-18 AFC 292)	079 00
Schematic(s)-	
AGM-84 SLAM Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	074 00
AGM-84H SLAM ER Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	076 00
AGM-154 JSOW Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	078 00
AIM-120 AMRAAM Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	072 00
GBU-31 JDAM Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	080 00
Electrical Boresight Compensation System	
Locator	069 00
Principles of Operation	068 00
Schematic - System Simplified	070 00
Introduction	002 00
Content	002 00
Diagrams	002 00
Effectivities	002 00
Manual Issue Date	002 00
Navy (AN) Standard/Common Nomenclature	002 00
Purpose	002 00
Record of Applicable Technical Directives	002 00
Requisitioning and Automatic Distribution of NAVAIR Technical Publication	002 00
Schematic Highlights	002 00
Technical Directives	002 00
Technical Publications Deficiency Report (TPDR)	002 00
Nonstandard Symbols	002 01
Stores Management System	
AGM-45 Shrike	055 00
Armament Mux Bus Data	016 00
Built-In Test Tables	039 00
Description	007 00
Description -	
Controls and Indicators	012 00
Related Systems	010 00
System Functions	008 00
Locator	014 00
Operation	017 00

Title	WP Number
Operation -	
AGM-45 Shrike	055 01
AGM-65 Maverick	058 00
AGM-84 Harpoon	059 00
AGM-88 HARM	056 00
AIM-7 Sparrow	048 00
AIM-9 Sidewinder	046 00
Aircraft Master Mode Select	019 00
Air To Ground Weapon Release Tone	026 03
Bomb	050 00
Bombing Displays	050 03
Bomb/Mine Program Select	051 03
Built-In Test	037 00
Built-In Test (After F/A-18 AFC 253 or F/A-18 AFC 292)	037 01
Data Freeze Display	061 01
Electrical Fuzing	044 00
Emergency Jettison	027 00
External Fuel Tank	035 00
Guided Weapon Control-Monitor Set AN/AWW-13 (After F/A-18 AFC 253 or F/A-18 AFC 292)	053 00
Launcher/Rack Lock/Unlock	031 00
Lock/Shoot Light/Shoot Cue	033 00
Master Arm	025 00
Mechanical Fuzing	045 01
Mine	051 07
Mine Displays (After F/A-18 AFC 253 or F/A-18 AFC 292)	051 05
Multiple Ejector Rack (MER)	051 01
Release Consent (After F/A-18 AFC 253 or F/A-18 AFC 292)	006 01
Rocket	060 00
Selective Jettison/Auxiliary Release	029 00
Sensor Control Switch and Throttle Designator Control (TDC) Assignment	041 01
Simulation Mode Select	026 01
Stores Inventory	021 00
Video Switching	040 00
Weapon Audio Switching	047 01
Weapon Station Power Control	042 00
Weapon Select	023 00
Reference Tables	015 00
Schematic(s) -	
AGM-45 Shrike Simplified	055 02
AGM-65 Maverick Simplified	058 01
AGM-65 Maverick Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	058 02
AGM-84 Harpoon Simplified	059 01
AGM-88 Harm Simplified	057 00
AIM-7 Sparrow Simplified	049 00
AIM-9 Sidewinder Simplified	047 00
AIM-9 Sidewinder Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	047 03
Aircraft Master Mode Select Simplified	020 00
Air To Ground Weapon Release Tone Simplified	026 04
Bomb/Mine Program Select Simplified	051 04
Bomb Simplified	051 00

Title	WP Number
Built-In Test Simplified	038 00
Built-In Test Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	038 01
Controls and Indicators Simplified	013 00
Data Freeze Display Simplified	061 02
Electrical Fuzing Simplified	045 00
Emergency Jettison Simplified	028 00
External Fuel Tank Simplified	036 00
Guided Weapon Control-Monitor set AN/AWW-13 Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	054 00
Launcher/Rack Lock/Unlock Simplified	032 00
Launcher/Rack Lock/Unlock Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	032 01
Lock/Shoot Light/Shoot Cue Simplified	034 00
Master Arm Simplified	026 00
Mechanical Fuzing Simplified	045 02
Mechanical Fuzing Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	045 03
Mine Simplified	051 08
Multiple Ejector Rack (MER) Simplified	051 02
Operation Simplified	018 00
Related Systems Simplified	011 00
Release Consent Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	006 02
Rocket Simplified	061 00
Selective Jettison/Auxiliary Release Simplified	030 00
Selective Jettison/Auxiliary Release Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	030 01
Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified	041 02
Simulation Mode Select Simplified	026 02
Stores Inventory Simplified	022 00
Stores Inventory Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	022 01
System Simplified	009 00
Video Switching Simplified	041 00
Weapon Audio Switching Simplified	047 02
Weapon Audio Switching Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	047 04
Weapon Select Simplified	024 00
Weapon Station Power Control Simplified	043 00
Weapon Station Power control Simplified (After F/A-18 AFC 253 or F/A-18 AFC 292)	043 01
Tables -	
Armament Mux Bus Data	016 00
Built-In Test	039 00
Reference	015 00
Suspension and Release Mechanisms	
Description	062 00
Locator	063 00
Operation -	
Missile Launchers	066 00
Pylons and Bomb Ejector Racks	064 00
Schematic(s) -	
Missile Launcher Simplified	067 00
Pylons and Bomb Ejector Racks Simplified	065 00

INTRODUCTION

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

WEAPON CONTROL SYSTEMS

This WP supersedes WP002 00, dated 1 November 2001.

1. PURPOSE.

2. This manual provides the technician with a general understanding of how the various components function in the system.

3. REQUISITION AND AUTOMATIC DISTRIBUTION OF NAVAIR TECHNICAL MANUALS.

4. Procedures to be used by Naval Activities and other Department of Defense activities requiring NAVAIR technical manuals are defined in NAVAIR 00-25-100 and NAVAIRINST 5605.5A. To automatically receive future changes and revisions to NAVAIR technical manuals, an activity must be established on the Automatic Distribution Requirements List (ADRL) maintained by the Naval Air Technical Data and Engineering Service Command (NATEC). To become established on the ADRL, notify your activity central technical publications librarian. If your activity does not have a library, you may establish your automatic distribution by contacting the Commanding Officer, NATEC, Attn: Distribution, NAS North Island, Bldg. 90, P.O. Box 357031, San Diego, CA 92135-7031. Annual reconfirmation of these requirements is necessary to remain on automatic distribution. Please use your NATEC assigned account number whenever referring to automatic distribution requirements.

5. If additional or replacement copies of this manual are required with no attendant changes in the ADRL, they may be ordered by submitting a MILSTRIP requisition in accordance with NAVSUP 485 to Routing Identifier Code “NFZ”. MILSTRIP requisitions can be submitted through your supply office, Navy message, or SALTS to DAAS (Defense Automated Address System), or through the DAAS or NAVSUP web sites. For assistance with a MILSTRIP requisition, contact the Naval Inventory Control Point (NAVICP) Publications and Forms Customer Service at DSN 442-2626 or (215) 697-2626, Monday through Friday, 0700 to 1600 Eastern Time.

6. CONTENT.

7. Work packages contain description and operation of systems, subsystems, and components. The text is supported by component locators, block diagrams and simplified schematics.

8. **COMPONENT LOCATOR.** The component locator shows aircraft component location. The illustration shows the technicians view when possible.

9. **BLOCK DIAGRAMS.** Block diagrams consist primarily of blocks connected by lines. These diagrams portray the function of a system or sub system.

10. **SIMPLIFIED SCHEMATICS.** Simplified schematics consist primarily of blocks connected by single lines with limited use of symbols and pictorial drawings of units. These schematics simplify system functions as much as possible. All schematics are shown with electrical power off, switches in off positions, and relays in deenergized position unless noted on schematic.

11. SCHEMATIC HIGHLIGHTS.

12. For schematic highlights see figure 1.

13. MANUAL ISSUE DATE.

14. The date on the title page is the copy freeze date. No additions, deletions, or changes are made after the manual issue date except last minute safety of flight or required maintenance changes. Data collected after the manual issue date will be included in later changes or revisions of the manual.

15. EFFECTIVITIES.

16. Effectivity notes on manual title pages, work package title pages, and within a work package

indicate the aircraft or software program to which the data applies. If no effectivity note appears on the work package title page, the work package has the same effectivity as shown on the manual title page. The effectivity notes may use:

NOTE

Aircraft with model designator F/A-18B are the same type and model as TF/A-18A.

a. Type, model, and series

b. Bureau number (tail number)

c. Combination of type, model, series, and bureau numbers

d. Part number or serial number

e. Technical directive number

f. Configuration/identification number

17. The table below shows examples of effectivity notes and their meanings:

Effectivity Note Examples

Effectivity Note	Definition
160777 AND UP	Applicable to all F/A-18A, F/A-18B, F/A-18C and F/A-18D for bureau numbers listed.
F/A-18A, F/A-18B	Applicable to all F/A-18A and F/A-18B.
F/A-18C, F/A-18D	Applicable to all F/A-18C and F/A-18D.
F/A-18A	Applicable to all F/A-18A, but not F/A-18B, F/A-18C and F/A-18D.
F/A-18B	Applicable to all F/A-18B, but not F/A-18A, F/A-18C, and F/A-18D.
F/A-18C	Applicable to all F/A-18C, but not F/A-18A, F/A-18B, and F/A-18D.
F/A-18D	Applicable to all F/A-18D, but not F/A-18A, F/A-18B, and F/A-18C.
F/A-18A, F/A-18C	Applicable to all F/A-18A and F/A-18C, but not to F/A-18B and F/A-18D.
F/A-18B, F/A-18D	Applicable to all F/A-18B and F/A-18D, but not to F/A-18A and F/A-18C.
F/A-18A 160775, 160777 THRU 160782	Only applicable to some bureau numbers of F/A-18A. Not applicable to any F/A-18B, even if an F/A-18B bureau number is within the numbers listed.
F/A-18C 163427, 163430 THRU 163456	Only applicable to some bureau numbers of F/A-18C. Not applicable to any F/A-18D, even if an F/A-18D bureau number is within the numbers listed.

Effectivity Note Examples (Continued)

Effectivity Note	Definition
F/A-18B 160784 AND UP	Only applicable to some bureau numbers of F/A-18B. Not applicable to any F/A-18A, even if an F/A-18A bureau number is within the numbers listed.
F/A-18D 163434 THRU 163457	Only applicable to some bureau numbers of F/A-18D. Not applicable to any F/A-18C, even if an F/A-18C bureau number is within the numbers listed.
160775 THRU 160785 BEFORE F/A-18 AFC 772	Applicable to F/A-18A and F/A-18B for bureau numbers listed, before modification by technical directive.
161213 AND UP; ALSO 160775 THRU 160785 AFTER F/A-18 AFC 772	Applicable to aircraft modified during production; also applicable when affected aircraft have been modified by technical directive.
160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-X IS INSTALLED	Applicable to F/A-18A and F/A-18B for bureau numbers listed if panel P/N XXXX-X is installed. (Configuration before AVC)
161213 AND UP; ALSO 160775 THRU 160785; WHEN NO. 2 CONTROL PANEL P/N XXXX-Y (AVC-102) IS INSTALLED	Applicable to aircraft modified during production; also applicable to aircraft components modified to the production configuration by technical directive. (Configuration after AVC)
P/N MBEU65101-9, MBEU65101-10 & MBEU65105-3	Applicable to assemblies which are interchangeable between aircraft.
ENGINE NO. 215101 THRU 215109	Applicable to assemblies which are interchangeable between aircraft, but configurations can not be identified by part number.
CONFIG/IDENT NUMBER 84A	The CONFIG/IDENT number is the program load identification number which identifies the software program loaded in specific programmable units. Refer to A1-F18AC-SCM-000 for CONFIG/IDENT number tables.

18. TECHNICAL DIRECTIVES.

19. Technical directives are documents which direct the accomplishment, and recording of a retrofit configuration or inspection to delivered aircraft, or aircraft components.

20. **AIRFRAME CHANGE (AFC) AND AIRBORNE TACTICAL SOFTWARE CHANGE (ASC).** Technical directives which change configuration of aircraft structure or equipment installation, i.e. AFC, will list aircraft bureau numbers in effectivity notes and show before and after the AFC. Technical directives which change configuration of operational flight programs (OFP), i.e. ASC, will list the OFP CONFIG/IDENT NUMBER in effectivity notes and show the latest two authorized OFP programs. See AFC and ASC effectivity examples in Effectivity Note Example Table.

21. **AIRCRAFT COMPONENT CHANGES.** Technical directives which change configuration of aircraft components, i.e. AAC, ACC, AVC, AYC, and PPC will list part numbers in the effectivities. See AVC effectivity examples in Effectivity Note Example table.

22. **HISTORICAL RECORD/RECORD OF APPLICABLE TECHNICAL DIRECTIVES.**

23. The technical directives affecting this manual are listed in the Record of Applicable Technical Directives of each affected work package. Because an ASC directs all aircraft be modified within 30 days, ASCs are not listed. When all affected aircraft are modified, the before configuration is removed from the manual, and the technical directive entry is removed from the Record of Applicable Technical Directives and entered in the Historical Record of Applicable Technical Directives.

24. TECHNICAL PUBLICATIONS DEFICIENCY REPORT (TPDR).

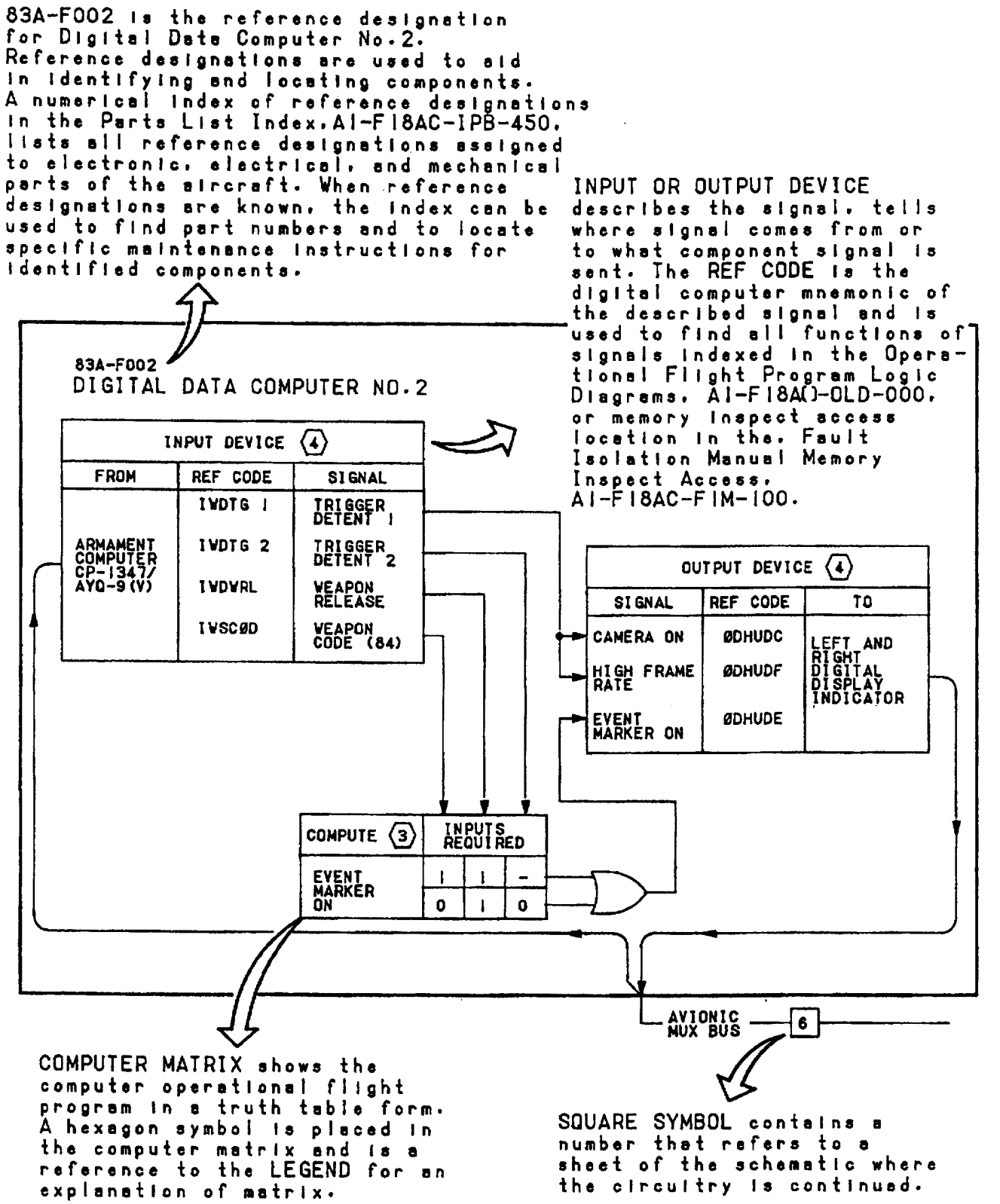
25. The TPDR (OPNAV FORM 4790/66) is the form for reporting errors and suspected omissions in the technical manuals. Reporting procedures are in OPNAVINST 4790.2 SERIES.

26. DIAGRAMS.

27. Simplified schematics and block diagrams are in this manual. System schematics are in A1-F18A( )-( )-500 series manuals.

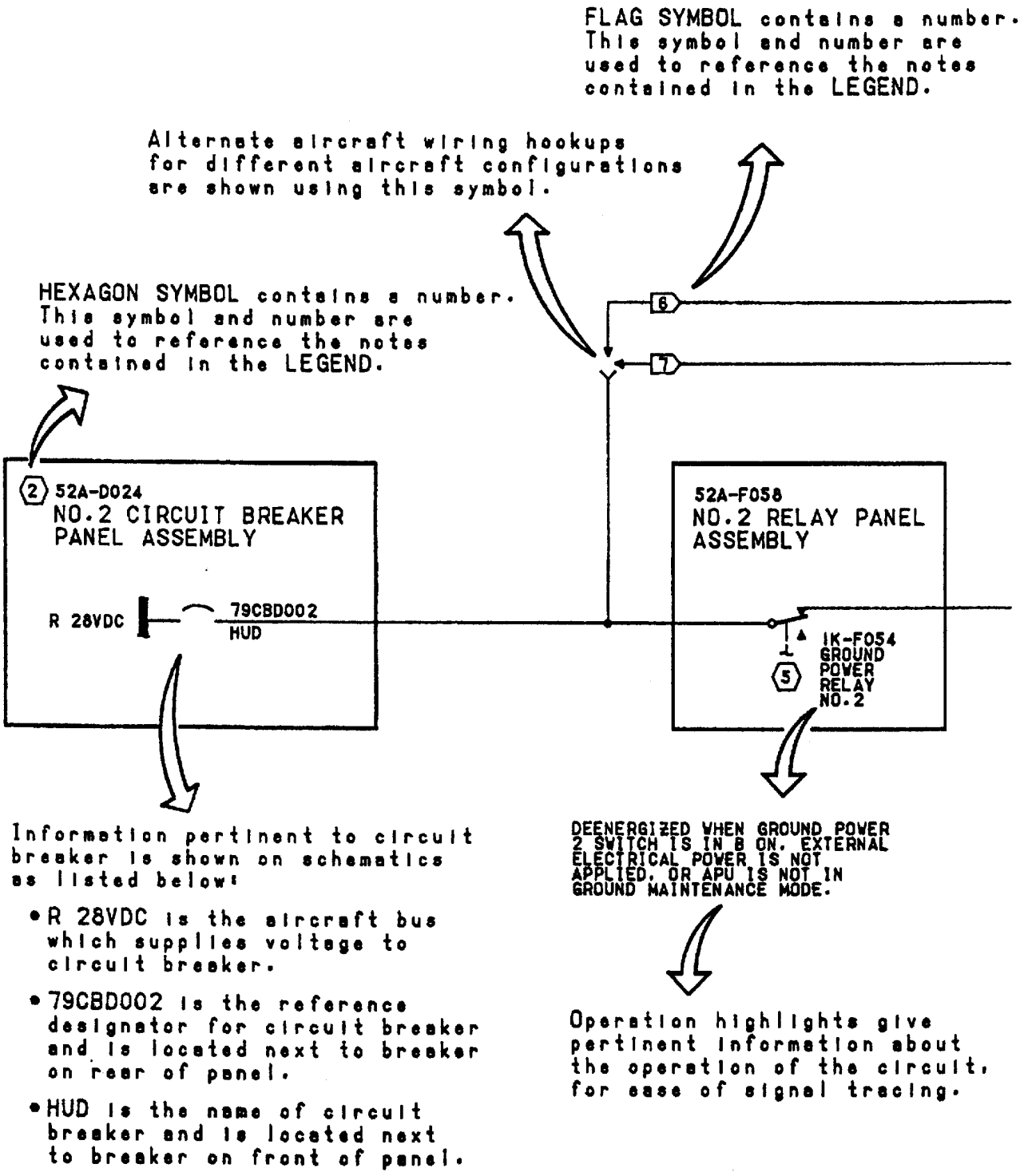
28. NAVY (AN) STANDARD/COMMON NAME NOMENCLATURE.

29. When an item has both Navy (AN) standard and common name nomenclature assigned, the common name nomenclature will be used in text and on illustrations. Full Navy (AN) standard nomenclature will be used in the Illustrated Parts Breakdown (IPB).



00200101

Figure 1. Schematic Highlights (Sheet 1)



00200102

Figure 1. Schematic Highlights (Sheet 2)

The legend contains all notes pertinent to the schematic as listed below:

NUMBER listed with no symbols is general information about the schematic.

NONSTANDARD SYMBOLS appearing on schematic are shown or referenced with an explanation.

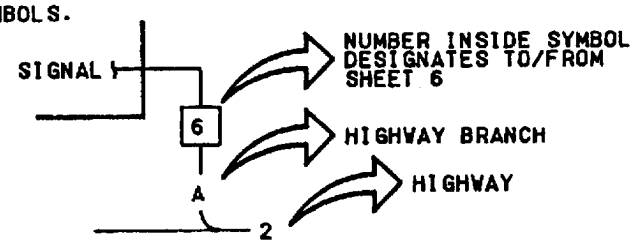
ABBREVIATIONS appearing on schematic are shown or referenced with an explanation.

HEXAGON SYMBOL refers to another schematic or manual for continuation of a circuit or an explanation of data contained on schematic.

FLAG SYMBOL indicates limited aircraft application.

LEGEND

1. NONSTANDARD SYMBOLS.



(2) POWER DISTRIBUTION SYSTEM SIMPLIFIED SCHEMATIC. A1-F18AC-420-100. WP005 00.

(3) EXPLANATION OF MATRIX

A. COMPUTE COLUMN LISTS THE SIGNAL OUTPUT.

B. INPUTS REQUIRED ARE USED TO DEVELOP THE SIGNAL OUTPUT.

C. THE SIGNAL OUTPUT IS READ HORIZONTALLY. EACH HORIZONTAL LINE IS AN INDEPENDENT SIGNAL OUTPUT.

D. INTERPRET MATRIX TABLE AS INDICATED:

(1) ONE (1) INDICATES THIS INPUT AS NAMED MUST BE THERE TO GET THE OUTPUT.

(2) ZERO (0) INDICATES THIS INPUT AS NAMED MUST NOT BE THERE TO GET THE OUTPUT.

(3) DASH (-) INDICATES THE OUTPUT DOES NOT DEPEND ON THIS INPUT.

(4) FOR LOGIC DIAGRAMS RELATING TO REF CODE, REFER TO A1-F18AC-OLD-000. FOR MEMORY INSPECT ACCESS LOCATION RELATING TO REF CODE, REFER TO A1-F18AC-FIM-100.

(5) GROUND POWER SWITCHING SIMPLIFIED SCHEMATIC. A1-F18AC-420-100. WP005 00.

[6] F/A-18A.

[7] F/A-18B.

00200103

Figure 1. Schematic Highlights (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

ABBREVIATIONS AND NONSTANDARD SYMBOLS

WEAPON CONTROL SYSTEMS

Reference Material

None

Alphabetical Index

Subject	Page No.
Abbreviations, Table 1	2
Introduction	1
Nonstandard Symbols, Figure 1	8

Record of Applicable Technical Directives

None

1. INTRODUCTION.

2. This work package supports all schematics contained in this manual.

3. Table 1 contains abbreviations used on the schematics in this manual.

4. Figure 1 contains the nonstandard symbols used in this manual.

Table 1. Abbreviations

Abbreviation	Term
A/A	Air to Air
A/G	Air to Ground
AACQ	Auto Acquisition
ACL	Automatic Carrier Landing
ACQ	Acquisition
ADC	Air Data Computer
ADDR	Address
ADS	Autopilot Disengage Switch
ADV	Advisory
AGM	Air to Ground Missile
AGR	Air to Ground Ranging
AIM	Air Intercept Missile
ALR-67	Counter Measures Computer CP-1293/ALR-67(V)
AMAC	Armament Monitor and Control System
AMRAAM	Advanced Medium Range Air to Air Missiles
AOC	Angle of Coincidence
A/P	Autopilot
APU	Auxiliary Power Unit
ASE	Allowable Steering Error
ASL	Azimuth Steering Line
ASPECT	Aspect Angle
AUTO	Automatic Computed Release
B	Barometric
BAC	Bank Angle Control

Table 1. Abbreviations (Continued)

Abbreviation	Term
BIA	Ballistic Integration Algorithm
BIT	Built-In Test
BOL	Bearing Only Launch
BNK	Bank
BRU	Bomb Ejector Rack Unit
BST	Boresight
CAM	Camera
CATM	Captive Air Training Missile
CCIP	Continuously Computed Impact Point
CDTRQ	Command Destruct Tone Required
CIP	Current Impact Point
CL	Centerline
CLC	Command Launch Computer
CLR	Clear
CONT	Contrast
CPL	Coupled
CPU	Central Processor Unit
CTR	Center
D/ALT	Designated Altitude
D/RNG	Designated Range
DCDR	Decoder
DEGD	Degraded
DDI	Digital Display Indicator
DF	Direction Finder

Table 1. Abbreviations (Continued)

Abbreviation	Term
DIL	Display Impact Line
DISTB	Disturbed (Gun Mode)
DL	Data Link
DLY	Delay
DLY 1	Delay 1
DLY 2	Delay 2
DSPL	Display
DSPLY	Display
E/W	East West
EASB	Electronic Altitude Sensor Bypass
EBCA	Electrical Boresight Compensation Assembly
EFUZE	Electrical Fuze
EL	Elevation
ELEC	Electrical
EOM	Equations of Motion
ESL	Elevation Steering Line
ETET	End to End Test
F/C	Forced Correlate
F	Fuselage
FACQ	Fast Acquisition
FD	Flight Director
FF	Free Fall
FLIR	Forward Looking Infrared System
FOV	Field Of View

Table 1. Abbreviations (Continued)

Abbreviation	Term
FPA	Flight Path Angle
FSA	Function Select A
FSB	Function Select B
FSC	Function Select C
FTS	Flight Termination System
FTT	Fixed Target Track
G	Normal Acceleration
GMTT	Ground Moving Target Track
GPS	Global Positioning System
H	Hung
H + LKD	Hung and Locked
H + TSN	Hung and Transition
H + UKD	Hung and Unlocked
H - OFF	Hand Off
HACQ	Head Up Acquisition
HARM	High Speed Anti-Radiation Missile
HARM OVRD	HARM Override (Self-Protect Pullback)
HI	Horizontal Indicator
HOB	Height Of Burst
HOF	Height of Function
HP	Harpoon
HRM	HARM
HRM OVRD	HARM Override
HSD	Horizontal Situation Display

Table 1. Abbreviations (Continued)

Abbreviation	Term
HSI	Horizontal Situation Indicator
HT	Height
HVDC	High Voltage Direct Current
HUD	Head Up Display
I/O	Input/Output
IBIT	Initiated Built In Test
IIR	Imaging Infrared
IMP	Impact
INS	Inertial Navigation System
INST	instantaneous for electrical, impact for mechanical
IN RNG	In Range
INT	Interval
IR	Infrared
IPL	Initial Program Load
JDAM	Joint Direct Attack Munition
JETT	Jettison
JSOW	Joint Stand Off Weapon
KTS	Knots
L & S	Launch and Steer
L FUS MSL	Left Fuselage Missile
LAU	Launch Adapter Unit
LCHR	Launcher
LDDI	Left Digital Display Indicator
LDG	Landing Gear
LDLY	Long Delay

Table 1. Abbreviations (Continued)

Abbreviation	Term
LDT	Laser Detector Tracker
LI	Left Inboard
LMG	Left Main Landing Gear
LO	Left Outboard
LOS	Line of Sight
LST	Laser Spot Tracker-Laser Detector Tracker
LTD/R	Laser Tracker Detector/Ranger
MAN	Manual
MAV	Maverick
MC	Mission Computer
MDL	Mission Data Loader
MECH	Mechanical
MER	Multiple Ejector Rack
MFUZE	Mechanical Fuze
MGU	Midcourse Guidance Unit
MI	Memory Inspect
MIN	Minimum
MLU	Memory Loader/Verifier
MN	Manual
MON	Monitor
MPWR	Missile Transmitter Power
MSDRS	Maintenance Status Display and Recording System
MSEC	Milliseconds
MSI	Multi Source Integration

Table 1. Abbreviations (Continued)

Abbreviation	Term
MTM	Magnetic Tape Memory
MU	Memory Unit
N/S	North/South
N/T	Nose/Tail
NAV	Navigation
NIRD	Normalized In Range Display
NM	Nautical Mile
NUC	Nuclear
NWA	Nose Wheel Area
NWS	Nose Wheel Steering
OFP	Operational Flight Program
OPT	Option
P/B	Push Button
PAL	Permissive Action Link
PB	Pre-Briefed
PCO	Power Changeover
PDI	Pulse Doppler Indicator
PK	Peak
PLA	Power Level Angle
PLBK	Pullback
PODVID	Pod Video
POL	Polarity
PRI	Primary
PROG	Program

Table 1. Abbreviations (Continued)

Abbreviation	Term
PROX	Proximity
PSI	Pod Status Indicator
PUP	Pullup
PVU	Precision Velocity Update
PW	Pulse Width
R FUS MSL	Right Fuselage Missile
RAERO	Aerodynamic Range
RBL	Range Bearing Launch
RCS	Radar Cross Section
RDDI	Right Digital Display Indicator
RDR	Radar
RDY	Ready
RE	Rockeye
REC/RPT	Receive/Repeat
RET	Retarded
RI	Right Inboard
RKT	Rocket
RMAX 1	Maximum Range 1
RMAX 2	Maximum Range 2
RMG	Right Main Gear
RMIN	Minimum Range
RNDS	Rounds
RNE	Range No Escape
RNG	Range
RO	Right Outboard

Table 1. Abbreviations (Continued)

Abbreviation	Term
RTCL	Reticle
RSET	Reset
RWS	Range While Search
SAF DSBL	Safe Disable
SAL	Salvo
SARM	Suspension And Release Mechanisms
SDEGD	Station Degrade
SEL	Select
SH	Shrike
SIM	Simulation
SKT	Socket
SLAM	Stand Off Land Attack Missile
SLAM ER	Stand Off Land Attack Missile Expanded Response
SMS	Stores Management System
SP	Self-Protect
SP TEST	Sparrow Test
SPRD	Spread
SSP	Stores Status Panel
STA	station
STBY	Standby
STRG	Steering
STT	Single Target Track
SUU	Stores Suspension and Release Unit
SV ACQD	Satellite Vehicles Acquired

Table 1. Abbreviations (Continued)

Abbreviation	Term
SW	Sidewinder
SYS	System
SYNC	Synchronizer
TA	Time After
TAMPS	Tactical Aircraft Mission Planning System
TAS	True Airspeed
TB	Time Before
TCA	Terrain Clearance Altitude
TD	Target Designation
TDC	Throttle Designator Control
TGT	Target
THP	Training Harpoon
TOF	Time Of Flight
TOO	Target Of Opportunity
TOM	Time Of Mix
TSLM	Training SLAM
TSLR	Training SLAM ER
TSN	Transition
TST	Test
TTG	Time To Go
TTLP	Time To Launch Point
TWS	Track While Scan
UFC	Up Front Control (Electronic Equipment Control C-10380/ASQ)

Table 1. Abbreviations (Continued)

Abbreviation	Term
USG	Unique Signal Generator
V	Target Velocity
VACQ	Vertical Acquisition
VC	Closing Velocity
VER	Vertical Ejector Rack
VRS	Video Recording System
VS	Velocity Search
VT	Proximity Fuze
VT 1	Proximity 1
VT 2	Proximity 2
VTR	Video Tape Recorder

Table 1. Abbreviations (Continued)

Abbreviation	Term
VV	Velocity Vector
WACQ	Wide Acquisition
WE	Walleye
WEDL	Walleye (Extended Range) Data Link
WHL	Wheel
WIP	Weapon Insertion Panel
WOW	Weight On Wheels
WPNS	Weapons
WRA	Weapon Replaceable Assembly
WYPT	Waypoint
XMIT	Transmit

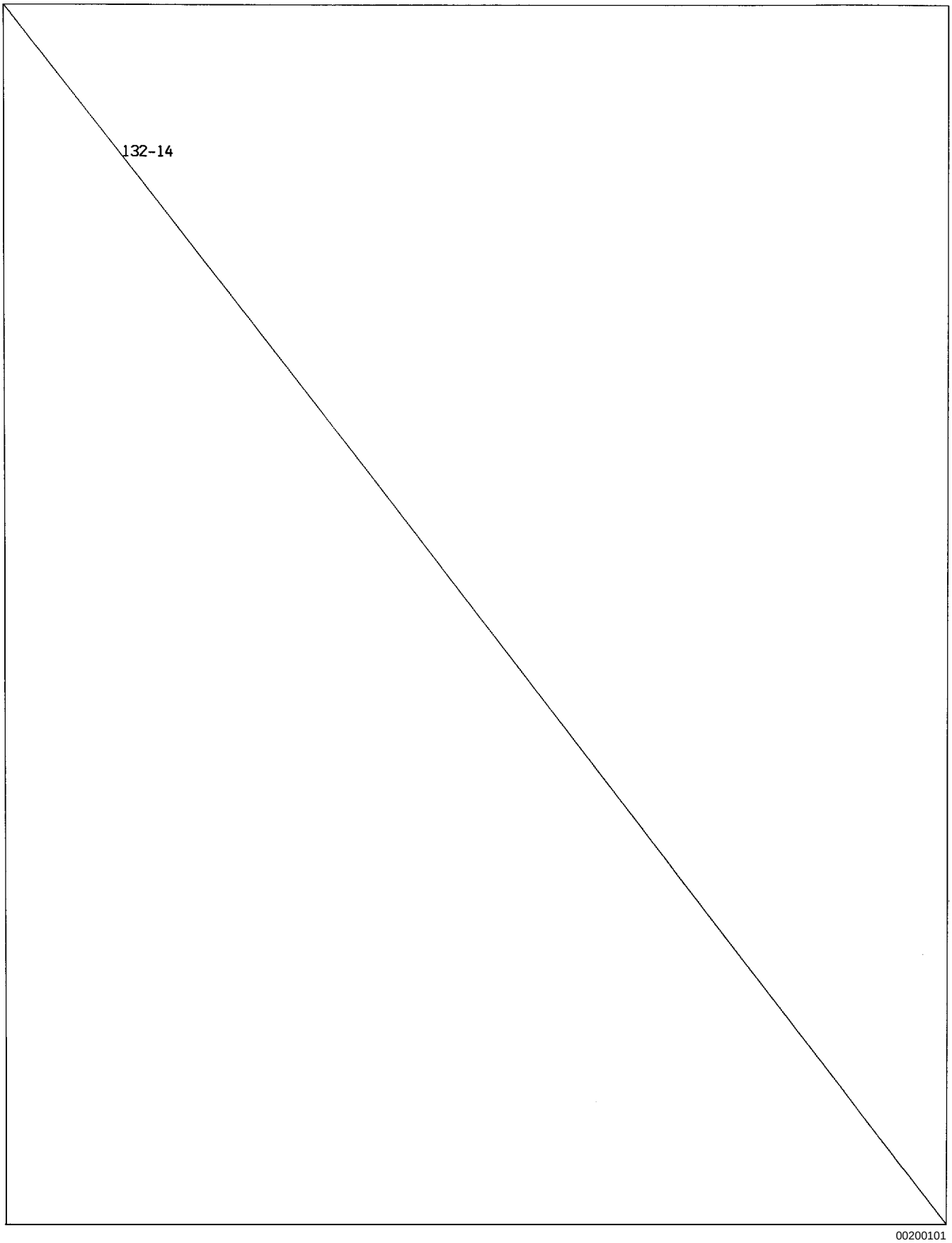


Figure 1. Nonstandard Symbols

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

RELEASE CONSENT OPERATION

STORES MANAGEMENT SYSTEM

Reference Material

Release Consent Simplified Schematic WP006 02
Locator – Stores Management System WP014 00
Weapon Control Systems A1-F18AC-740-110
Bomb Operation WP050 00

Alphabetical Index

Subject	Page No.
Auxiliary Fire	2
Description	1
Emergency Jettison	2
Introduction	1
Operation	2
Release Consent Dummy Panel	2

Record of Applicable Technical Directives

None

1. INTRODUCTION

2. The Stores Management System (SMS) release consent operation is provided in this work package (WP). Additional stores management system (SMS) description and operation WPs are listed in WP001 00.

3. Refer to WP006 02 for simplified schematic of release consent operation.

4. The SMS provides weapon release and avionic interface functions, refer to A1-F18AC-740-110, WP050 00.

5. Refer to WP014 00 for component location.

6. Release consent operation is provided as listed below:

a. description

b. operation

(1) release consent dummy panel

(2) aft release consent dummy panel

(3) auxiliary fire

(4) emergency jettison

7. DESCRIPTION

8. The release consent signal is 28vdc directly from the master arm switch when the switch is in ARM position. The release consent signals provide direct consent for the release of the store by energizing release consent relays 61K-W249 and 61K-W250 in the wing pylons. Each signal path is independent. In addition to release consent, software control by the SMS is required for normal release or selective jettison.

9. Inboard wing pylon stations 3 and 7 and outboard wing pylon stations 2 and 8 contain release consent relays 61K-W249 and 61K-W250. The relays interrupt the firing circuit to the BRU-32 bomb rack breeches. Stations 3 and 7 receive the 28vdc directly from the master arm switch.

10. Outboard wing pylons, weapon stations 2 and 8, require the presence of the release consent dummy panel in the cockpit. A circuit in the panel completes the circuit path of the master arm 28vdc to the pylon release consent relays.

11. OPERATION.

12. **RELEASE CONSENT DUMMY PANEL.** The release consent dummy panel uses a stowage connector with jumper wires to complete release consent circuits.

13. **Weapon Stations 2 and 8.** Setting the master arm control panel assembly MASTER switch to ARM sends a 28vdc master arm output through the jumper plug to weapon stations 2 and 8 wing pylon relay box assembly to energize release consent relays 61K-W249 and 61K-W250. Lock/unlock commands are generated in the armament computer. No other switches are in the circuit.

14. **Weapon Stations 3 and 7.** Setting master arm control panel assembly MASTER switch to ARM sends 28vdc master arm output to weapon stations 3 and 7 wing pylon relay box assembly 61A-W258 to energize release consent relays 61K-W249 and 61K-W250. Lock/unlock commands are generated in the armament computer for stations 3 and 7. No other switches are in the circuit.

15. **Weapon Stations 2 and 8.** Setting the master arm control panel assembly MASTER switch to ARM sends a 28vdc master arm output through the release consent dummy panel jumper plug and the aft release consent dummy panel jumper plug to weapon stations 2 and 8 wing pylon relay box assembly to energize release consent relays 61K-W249 and 61K-W250. Lock/unlock commands are generated in the armament computer. No other switches are in the circuit.

16. **AUXILIARY FIRE.** The SMS encoder-decoders also send 28vdc auxiliary fire output through energized release consent relays 61K-W249 and 61K-W250 to the BRU-32 auxiliary breech.

17. **EMERGENCY JETTISON.** The 28vdc emergency jettison output from SMS encoder-decoder by passes release consent relays. A release consent is not required for emergency jettison.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - RELEASE CONSENT SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

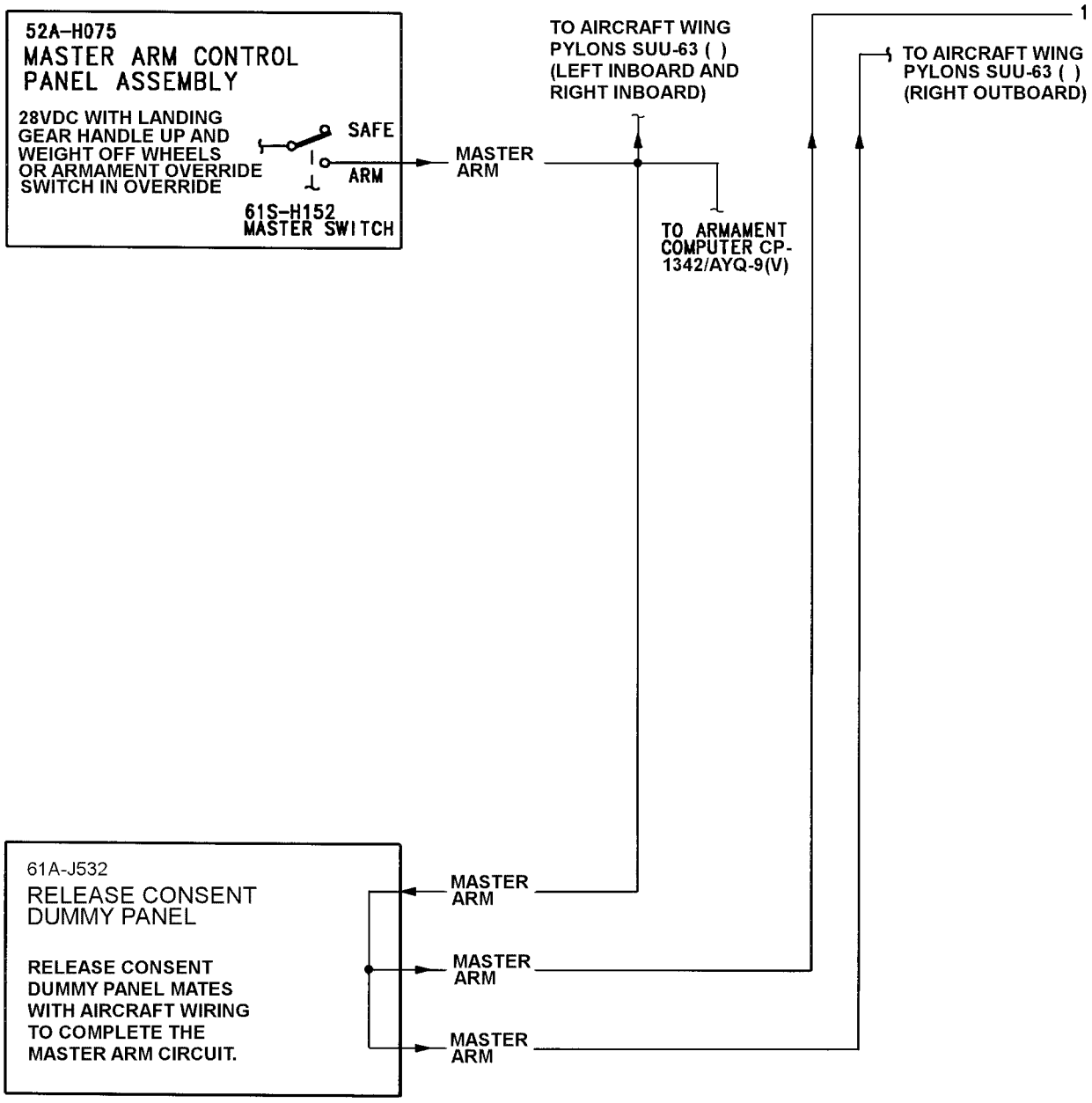
Subject	Page No.
Introduction	1
Release Consent Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

None

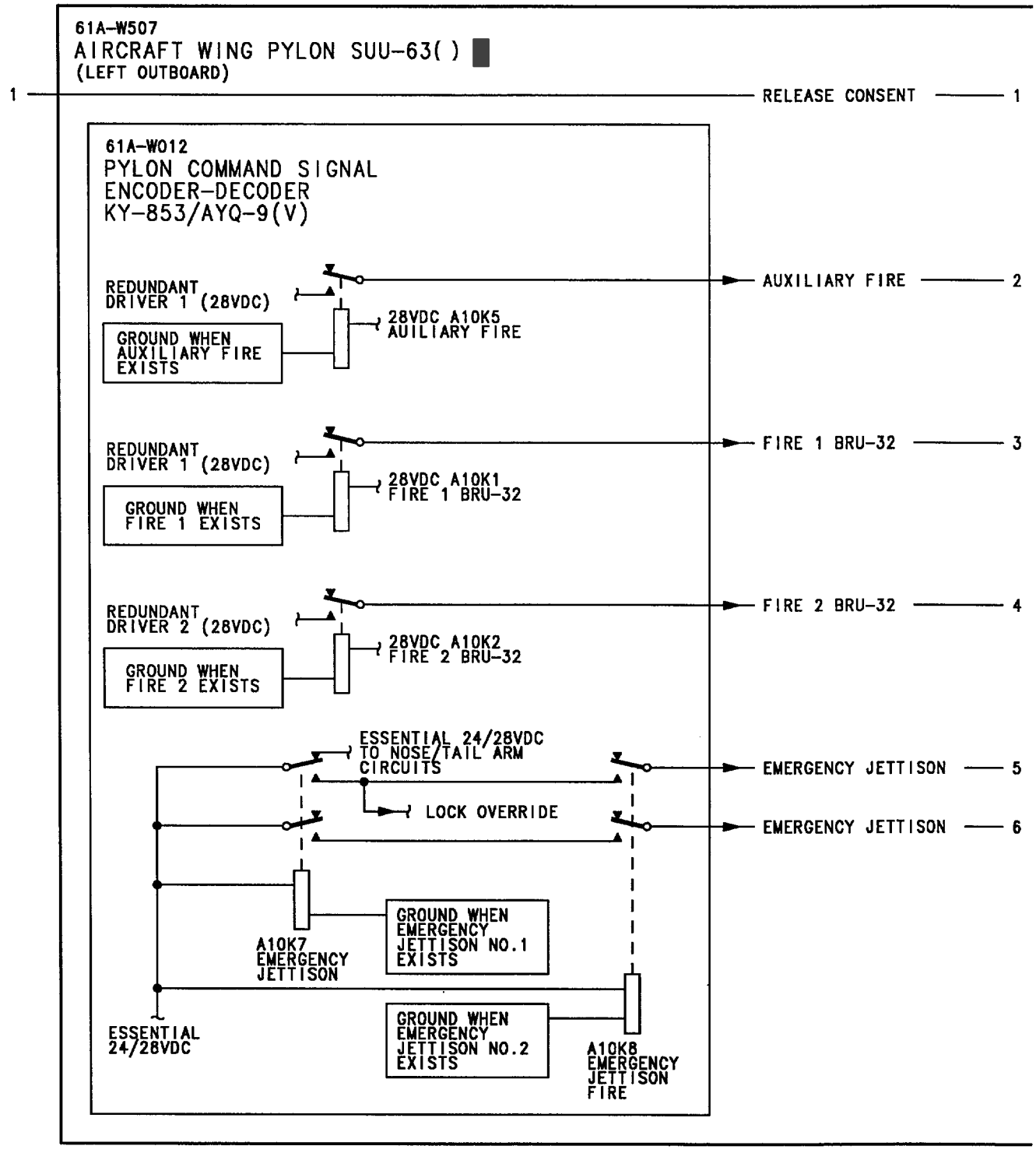
1. INTRODUCTION.

2. The Simplified schematic in this work package supports the release consent principles of operation in WP006 01.



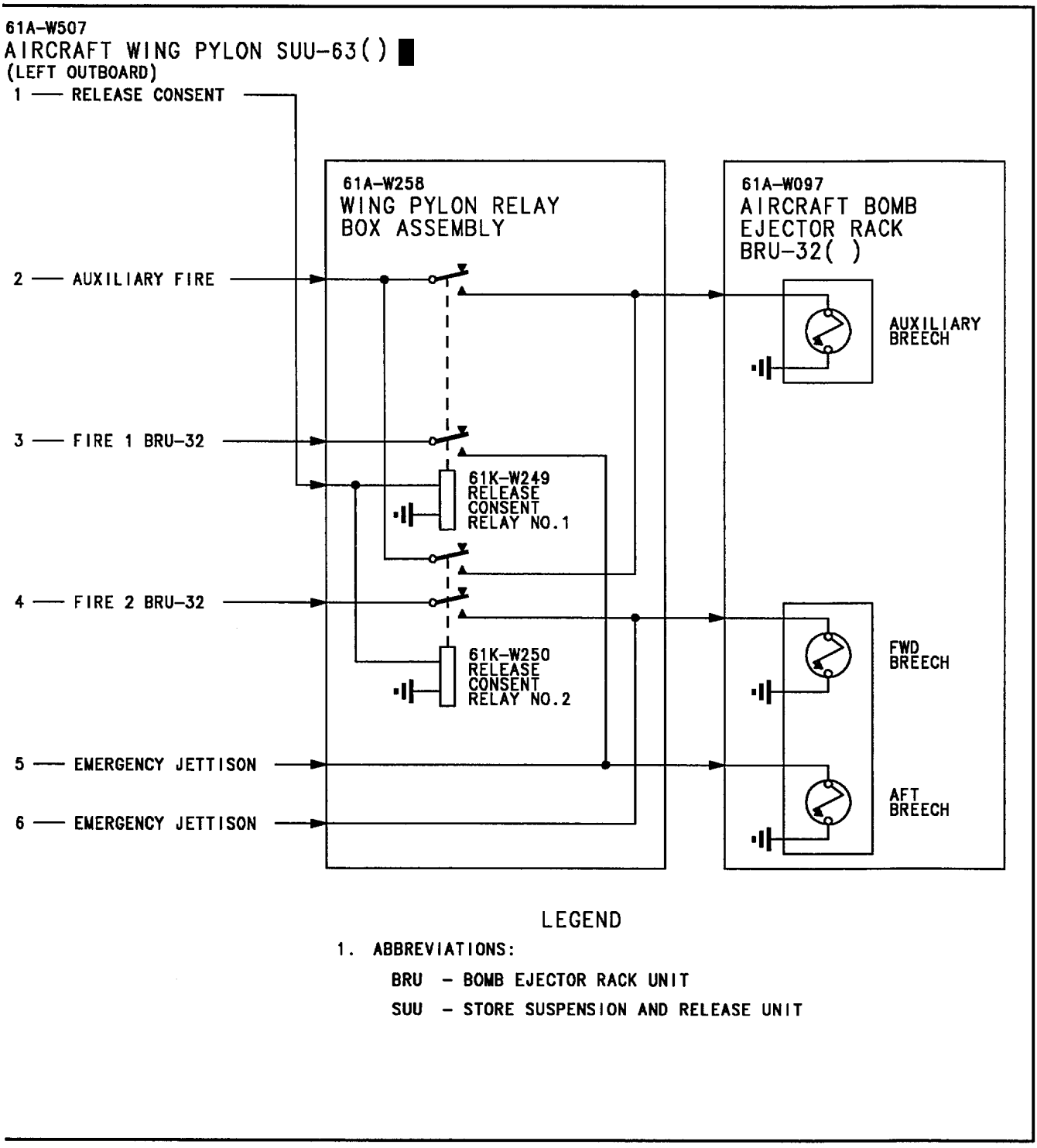
06020101

Figure 1. Release Consent Simplified Schematic (Sheet 1)



06020102

Figure 1. Release Consent Simplified Schematic (Sheet 2)



06020103

Figure 1. Release Consent Simplified Schematic (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

DESCRIPTION

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Reference Tables WP015 00
Stores Management System Simplified Schematic WP009 00

Alphabetical Index

Subject	Page No.
Introduction	1
Station Store Configuration, Before F/A-18 AFC 253 or AFC 292, Figure 1	5
Station Store Configuration, After F/A-18 AFC 253 or AFC 292, Figure 2	7
System Components	2
System Description	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 37	16 Feb 84	Deletion of Landing Gear Handle Logic from AN/AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores management system (SMS) description is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. The system simplified schematic in WP009 00 shows system components, related systems, controls and indicators interface.

4. Component locations are shown in WP014 00.

5. SYSTEM DESCRIPTION.

6. The SMS provides the interface, control, and release functions of the nine weapon stations and M61A1 20mm automatic gun system. Figure 1 locates and identifies the weapon stations on the aircraft and lists weapons or stores which can be carried on each station. Weapon stations are made up of weapons or

stores, and the suspension equipment (launchers and racks) required for loading the weapon station.

7. The SMS provides electrical interface between the weapon stations, M61A1 20mm automatic gun system (gun system), aircraft switching, and related aircraft systems. The SMS functions with aircraft systems that supply data for weapon control or use SMS status and weapon release data. These signals can be discrete signals or multiplex data by way of the mission computer (MC) system.

8. Built-in test (BIT) circuits in the SMS components provide system fault monitoring functions as listed below:

a. power up BIT (system turn on)

b. periodic BIT (continuous)

c. initiated BIT (when selected)

d. maintenance BIT (when selected)

9. SYSTEM COMPONENTS.

10. The SMS is made up of an Armament Control Processor Set AN/AYQ-9(V), Command Launch Computer CP-1001( )/AWG and Electrical Fuzing Power Supply PP-6419/AWW-4(V).

11. **ARMAMENT CONTROL PROCESSOR SET AN/AYQ-9(V).** The armament control processor set is made up of the components listed below:

a. Armament Computer CP-1342/AYQ-9(V).

b. Left and Right Wing Tip Command Signal Encoder-Decoders KY-851/AYQ-9(V).

c. Left and Right, Inboard and Outboard Wing Pylon Command Signal Encoder-Decoders KY-853/AYQ-9(V).

d. Left and Right Fuselage Command Signal Encoder-Decoders KY-854/AYQ-9(V).

e. Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V).

12. Weapon stations and the gun system are controlled by command signal encoder-decoders (encoder-decoder). The right fuselage encoder-decoder controls both weapon stations 5 and 6.

13. The armament computer and the nine encoder-decoders are interfaced by the armament mux bus. Multiplex data on the armament mux bus enables the armament computer to monitor and control the gun system and weapon stations.

14. **Armament Computer CP-1342/AYQ-9(V).** The armament computer is a software programmable computer that controls the functions of SMS components.

15. Power requirements of the armament computer are 115vac 400 Hz 3 phase, 28vdc, and 24/28vdc essential. Ground power switching circuits disable power to the armament computer when external or auxiliary power unit (APU) power is applied to the aircraft. When 3 switch on GND PWR control panel assembly is at B ON, power is applied to the armament computer.

16. Essential 24/28vdc provides power for the emergency jettison circuits. Emergency jettison circuits are isolated from all armament computer functions. This allows emergency jettison when the SMS is off or failed.

17. The armament computer has a weapon insertion panel with four switches for each of the five pylon weapon stations. Two switches per station (ARMAMENT) are set to identify the store or weapon loaded on the station. The other two station switches (FUZING) are set to indicate the nose/tail fuze type installed on weapons which require fuzing. The remaining switch is set to show wing tip stations load configuration.

18. Refer to the tables listed below in WP015 00. They show fuzing and store code settings for the weapon insertion panel switches:

a. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays

b. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays for Station 1 and 9

c. Fuze Types and Armament Computer Fuze Codes

19. The armament computer interfaces the MC system by way of avionic mux bus. The armament computer sends the MC system inventory and status data, aircraft switching functions, and system BIT status. MC system provides the multipurpose display group with data for stores displays. Data sent to the armament computer provides weapon select, weapon programming, and prelaunch data for selected weapons.

20. The armament computer turns on the Command Launch Computer CP-1001( )/AWG during BIT or when high speed anti-radiation missile (HARM) is selected. When the command launch computer turns on, discrete HARM signals are sent to the HARM switching relays in the armament computer. HARM relay outputs are applied directly to the selected HARM.

21. When a weapon or store with video ability is selected, the armament computer provides video switching. Video switching circuits output the video from the selected weapon station to the multipurpose display group for display.

22. The armament computer provides audio switching when AIM-9 sidewinder or AGM-45 shrike is selected. Relay switching logic in the armament computer outputs audio from the selected weapon station to intercommunications and audio tones system.

23. **Command Signal Encoder-Decoders.** Encoder-decoders provide interface between the weapon station and Armament Computer CP-1342/AYQ-9(V). Weapon station interface is made up of discrete wiring between the weapon or rack/launcher used to load the weapon. Discrete wiring from the weapon station provides weapon station status to the encoder-decoder. Discrete wiring to the weapon station provides prelaunch data and weapon release signals.

24. Multiplex data on the armament mux bus enables the encoder-decoder to transmit weapon status data and receive weapon signals and commands from the armament computer.

25. Aircraft power requirements for encoder-decoders are 115vac, 400 Hz, phase A and 28vdc. When the encoder-decoder provides interface for a pylon weapon station, essential 24/28vdc is also required for emergency jettison and mechanical fuzing circuits.

26. Aircraft power is applied to the encoder-decoder when aircraft electrical power is on. The armament computer turns the encoder-decoder on by applying a discrete (ground) enable to the encoder-decoder. Encoder-decoder on signal enables regulator circuits in the encoder-decoder to output B+ voltages required for internal circuits. Encoder-decoders are turned on during BIT or when the encoder-decoder controls a weapon station with the selected weapon aboard.

27. On 161353 THRU 161528, each encoder-decoder has a BIT latch indicator. The BIT latch indicator is software disabled. Latch indications may occur but do not indicate a failed encoder-decoder. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, BIT latch indicators have been physically removed except for Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V), BIT latch indicator, which is software disabled. When the armament computer determines that an encoder-decoder has failed, the armament computer removes the failed weapon station from the weapon release sequence and updates the encoder-decoder BIT status to the MC system.

28. The right fuselage and four wing pylon encoder-decoders (weapon stations 2, 3, 5, 7 and 8) receive discrete emergency jettison 1 and 2 signals from the armament computer. Emergency jettison circuits in the encoder-decoders are isolated from all other functions. These circuits are powered from the essential 24/28vdc bus. When emergency jettison 1 and 2 are sent from the armament computer, encoder-decoder outputs 24/28vdc to the lock override solenoid and forward and aft breech cartridges, to jettison stores from the pylon Aircraft Bomb Ejector Rack BRU-32( ).

29. **Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V).** The gun encoder-decoder provides discrete signal interface with the gun system pallet disconnect connector. Two more encoder-decoder signals interface cabin cooling and anti-fog system and the hydraulic system. The purge/scavenge discrete opens the gun gas purge valve to enable purge air from the cabin cooling and anti-fog system. The flow regulator solenoid discrete enables the dual rate solenoid valve. The valve controls the hydraulic drive for high and low gun fire rate.

30. The gun encoder-decoder has impedance matching resistors for primary and secondary armament mux bus high/low signals.

31. The rounds loaded switch on the front of the gun encoder-decoder is used to reset the rounds remaining to 578 rounds. The switch is pressed after the gun is loaded.

32. Gun system description and operation is in A1-F18AC-750-100.

33. **Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V).** The wing tip encoder-decoder provides discrete interface with Guided Missile Launcher LAU-7( ) when AIM-9 sidewinders are loaded on the wing tip weapon stations (1 and 9).

34. The right wing tip encoder-decoder has impedance matching resistors for primary armament mux bus high/low signals. The left wing tip encoder-decoder has impedance matching resistors for secondary armament mux bus high/low signals. The wingtip encoder-decoders are interchangeable.

35. **Wing Pylon Command Signal Encoder-Decoders KY-853/AYQ-9(V).** Wing pylon encoder-decoders are removed and installed as part of the Aircraft Wing Pylon SUU-63( ). The encoder-decoders provide discrete weapon station interface with the BRU-32 and pylon weapon disconnect/stowage receptacle panel. Weapon signals are sent to the AIR-AIR and AIR-GND connectors on the weapon disconnect/stowage receptacle panel. AIR-AIR and AIR-GND connectors mate with jumper bundles for weapon station interface with racks/launchers/weapons.

36. Discrete signals between wing pylon encoder-decoder and the BRU-32 are used to control and monitor release functions of weapons/stores or launchers/racks attached to the BRU-32.

37. **Fuselage Command Signal Encoder-Decoders KY-854/AYQ-9(V).** Fuselage encoder-decoders interface Aircraft Guided Missile Launchers LAU-116( ) when AIM-7 sparrows or AIM-120 AMRAAMS (AFTER AFC 253 or 292), are loaded on fuselage weapon stations (4 and 6). The encoder-decoders are interchangeable.

38. The right fuselage encoder-decoder also interfaces aircraft disconnects for the Aircraft Centerline Fuselage Pylon SUU-62( ). Signal interface is provided for the BRU-32 and the connector for jumper cables for stores/weapons loaded on the BRU-32.

39. **COMMAND LAUNCH COMPUTER CP-1001( )/AWG.** The command launch computer (CLC) is used to control and monitor the high speed anti-radiation missile (HARM).

40. Avionic mux bus provides interface between the MC system and command launch computer. Discrete interface between the command launch computer and armament computer enables the armament computer to send HARM data to the selected weapon station. The armament computer controls and monitors the command launch computer status to make sure HARM functions are compatible with other weapon operations.

41. Serial data bus and discrete interface with the Countermeasures Computer CP-1293/ALR-67(V) provides the necessary data to the CLC for HARM weapon computations.

42. Power requirements for the command launch computer are 115vac, 400 Hz, 3 phase and 28vdc. When HARM weapon is selected or during initiated BIT, the armament computer enables the command launch computer on relay. The command launch computer on relay enables regulator circuits to apply B+ voltages to the command launch computer circuits.

43. Initiated BIT may be done inflight to test HARM weapons and the command launch computer.

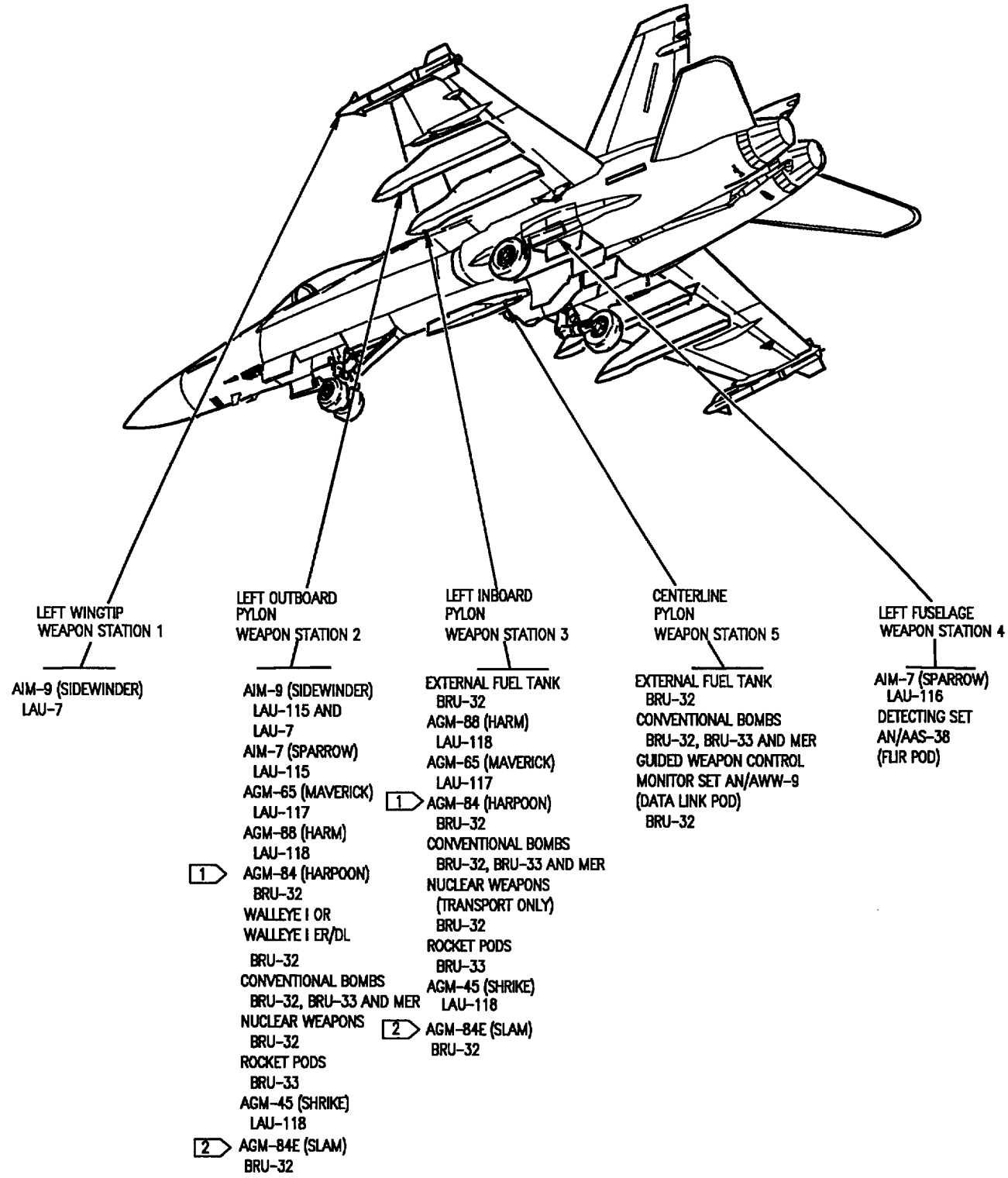
44. **ELECTRICAL FUZING POWER SUPPLY PP-6419/AWW4(V).** The electrical fuzing power supply provides electrical fuzing function of the SMS. When weapons which require electrical fuzing are loaded on a weapon station, weapon type and fuzing codes are set on the weapon insertion panel on the armament computer. For fuze types and armament computer fuze codes, refer to WP015 00.

45. The power requirement for the electrical fuzing power supply is 115vac 400 Hz 3 phase.

46. On 161353 THRU 161987 BEFORE F/A-18 AFC 37, power is applied to the power supply during BIT or when all gear up and locked is true and LDG gear control (handle) is up.

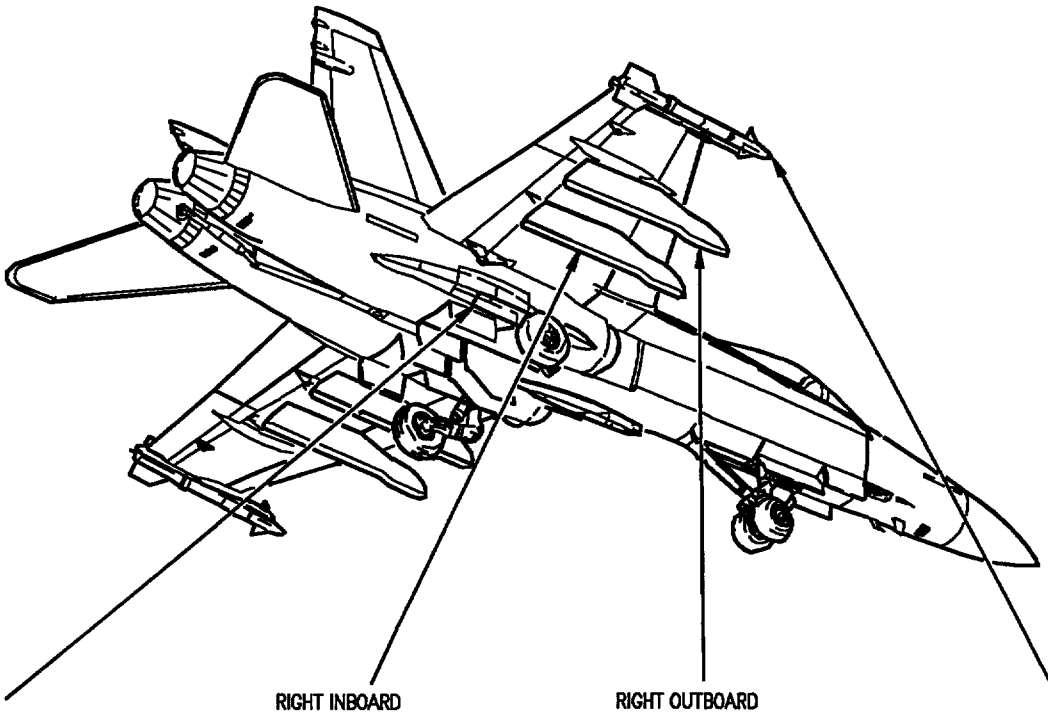
47. On 162394 AND UP; also 161353 THRU 161987 AFTER F/A-18 AFC 37, power is applied to the power supply during BIT or when all gear up and locked is true.

48. Discrete signals from the armament computer control high/low, positive/negative, and output enable functions of the power supply.



00700101

Figure 1. Station Store Configuration Before F/A-18 AFC 253 of AFC 292 (Sheet 1)



RIGHT FUSELAGE WEAPON STATION 6

AIM-7 (SPARROW)
LAU-116
LASER DETECTOR-TRACKER-STRIKE CAMERA SET AN/ASQ-173 (LDT/SCAM POD)

RIGHT INBOARD PYLON WEAPON STATION 7

EXTERNAL FUEL TANK
BRU-32
AGM-88 (HARM)
LAU-118
AGM-65 (MAVERICK)
LAU-117
[1] AGM-84 (HARPOON)
BRU-32
CONVENTIONAL BOMBS
BRU-32 BRU-33 AND MER
NUCLEAR WEAPONS (TRANSPORT ONLY)
BRU-32
ROCKET PODS
BRU-33
AGM-45 (SHRIKE)
LAU-118
[2] AGM-84E (SLAM)
BRU-32

RIGHT OUTBOARD PYLON WEAPON STATION 8

AIM-9 (SIDEWINDER)
LAU-115 AND
LAU-7
AIM-7 (SPARROW)
LAU-115
AGM-65 (MAVERICK)
LAU-117
AGM-88 (HARM)
LAU-118
[1] AGM-84 (HARPOON)
BRU-32
WALLEYE I OR
WALLEYE I ER/DL
BRU-32
CONVENTIONAL BOMBS
BRU-32,BRU-33 AND MER
NUCLEAR WEAPONS
BRU-32
ROCKET PODS
BRU-33
AGM-45(SHRIKE)
LAU 118
[2] AGM-84E (SLAM)
BRU-32

RIGHT WINGTIP WEAPON STATION 9

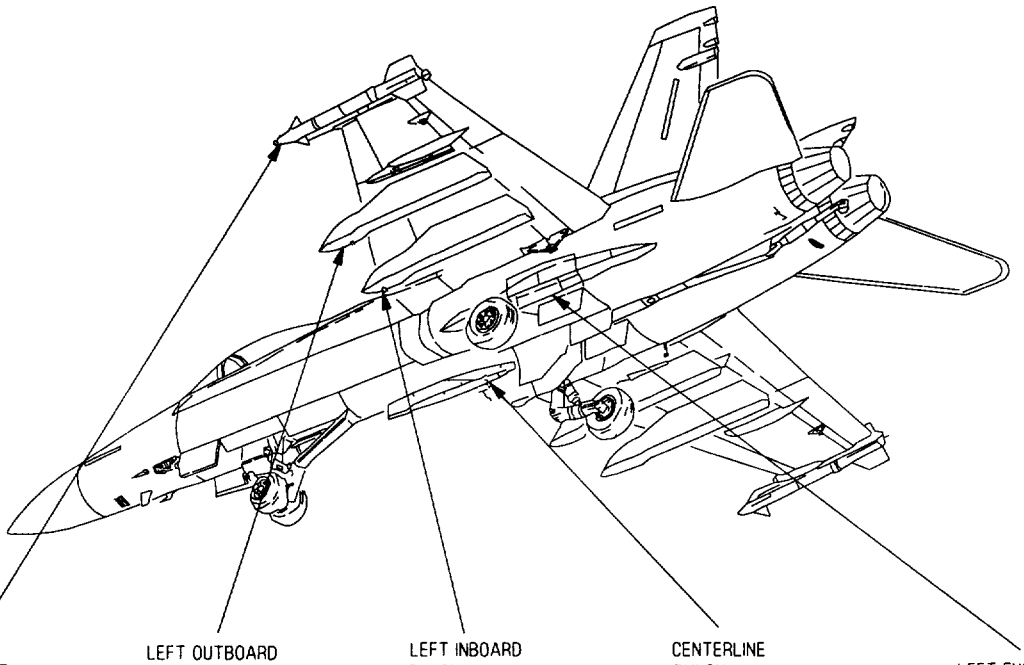
AIM-9 (SIDEWINDER)
LAU-7

LEGEND

[1] 162394 AND UP; ALSO 161353 THRU 161987, AFTER F18 AFC 74.
[2] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

00700102

Figure 1. Station Store Configuration Before F/A-18 AFC 253 or AFC 292 (Sheet 2)



LEFT WINGTIP WEAPON STATION 1

AIM-9 (SIDEWINDER)
LAU-7

LEFT OUTBOARD PYLON WEAPON STATION 2

AIM-7 (SPARROW)
LAU-115
AIM-9 (SIDEWINDER)
LAU-115 AND
LAU-7 OR LAU-127
AIM-120 (AMRAAM)
LAU-115 AND LAU-127
AGM-65 (MAVERICK)
LAU-117
AGM-84 (HARPOON OR SLAM)
BRU-32
AGM-84H (SLAM ER)
BRU-32
AGM-154 (JSOW)
BRU-32
AGM-88 (HARM)
LAU-118
CONVENTIONAL BOMBS OR MINES
BRU-32, BRU-33 AND MER/BRU-41
GBU-31 (JDAM)
BRU-32
GUIDED WEAPON CONTROL
MONITOR SET AN/AWW-13
(ADVANCED DATA LINK POD)
BRU-32
ROCKET PODS
BRU-33
CNU-188 (BAGGAGE CARRIER)
BRU-32

LEFT INBOARD PYLON WEAPON STATION 3

AGM-65 (MAVERICK)
LAU-117
AGM-84 (HARPOON OR SLAM)
BRU-32
AGM-84H (SLAM ER)
BRU-32
AGM-154 (JSOW)
BRU-32
AGM-88 (HARM)
LAU-118
CONVENTIONAL BOMBS OR MINES
BRU-32, BRU-33 AND MER/BRU-41
EXTERNAL FUEL TANK
BRU-32
GBU-31 (JDAM)
BRU-32
GUIDED WEAPON CONTROL
MONITOR SET AN/AWW-13
(ADVANCED DATA LINK POD)
BRU-32
ROCKET PODS
BRU-33
CNU-188 (BAGGAGE CARRIER)
BRU-32
AIM-7 (SPARROW)
LAU-115
AIM-120 (AMRAAM)
LAU-115 AND LAU-127

CENTERLINE PYLON WEAPON STATION 5

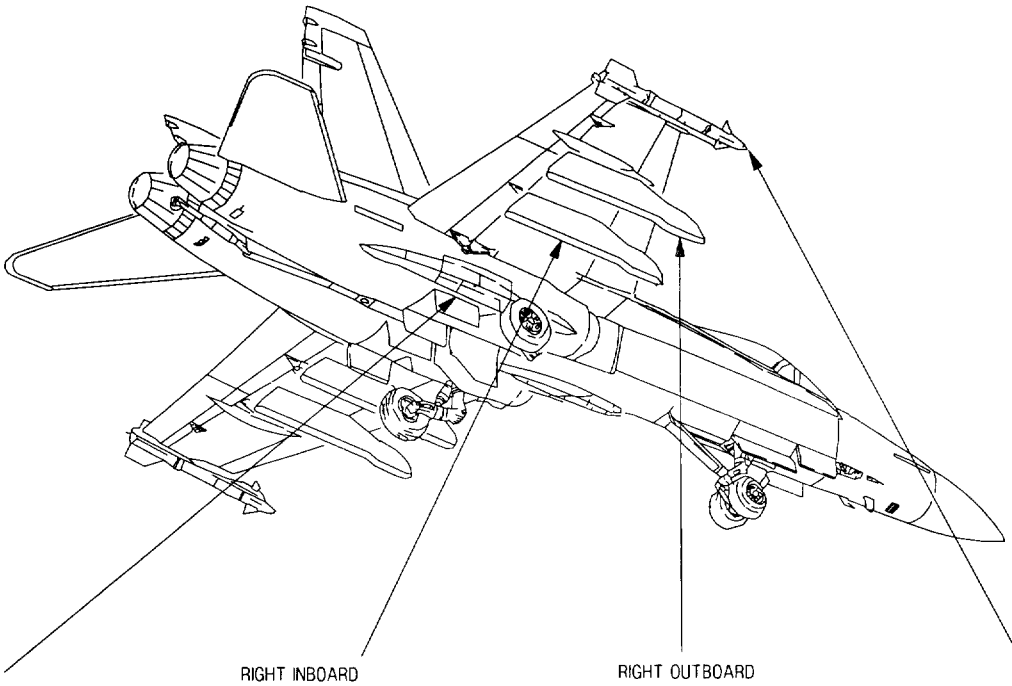
CONVENTIONAL BOMBS
BRU-32, BRU-33 AND MER
EXTERNAL FUEL TANK
BRU-32
GUIDED WEAPON CONTROL
MONITOR SET AN/AWW-13
(ADVANCED DATA LINK POD)
BRU-32
CNU-188 (BAGGAGE CARRIER)
BRU-32

LEFT FUSELAGE WEAPON STATION 4

AIM-7 (SPARROW)
LAU-116
AIM-120 (AMRAAM)
LAU-116
DETECTING SET
AN/AAS-38( )
(FLIR/LTD/R)

00700201

Figure 2. Station Stores Configuration After F/A-18 AFC 253 or AFC 292 (Sheet 1)



RIGHT FUSELAGE
WEAPON STATION 6

AIM-7 (SPARROW)
LAU-116
AIM-120 (AMRAMM)
LAU-116
LASER DETECTOR-
TRACKER-STRIKE
CAMERA SET
AN/ASQ-173
(LDT/SCAM POD)
NAVIGATION
INFARED
RECEIVING SET
AN/AAR-50
(NFLIR)

RIGHT INBOARD
PYLON
WEAPON STATION 7

AGM-65 (MAVERICK)
LAU-117
AGM-84 (HARPOON OR SLAM)
BRU-32
AGM-84H (SLAM ER)
BRU-32
AGM-154 (JSOW)
BRU-32
AGM-88 (HARM)
LAU-118
CONVENTIONAL BOMBS OR MINES
BRU-32, BRU-33 AND MER/BRU-41
EXTERNAL FUEL TANK
BRU-32
GBU-31 (JDAM)
BRU-32
GUIDED WEAPON CONTROL
MONITOR SET AN/AWW-13
(ADVANCED DATA LINK POD)
BRU-32
NUCLEAR WEAPONS
(TRANSPORT ONLY)
BRU-32
CNU-188 (BAGGAGE CARRIER)
BRU-32
AIM-7 (SPARROW)
LAU-115
AIM-120 (AMRAAM)
LAU-115 AND LAU-127

RIGHT OUTBOARD
PYLON
WEAPON STATION 8

AIM-7 (SPARROW)
LAU-115
AIM-9 (SIDEWINDER)
LAU-115 AND
LAU-7 OR LAU-127
AIM-120 (AMRAAM)
LAU-115 AND LAU-127
AGM-65 (MAVERICK)
LAU-117
AGM-84 (HARPOON OR SLAM)
BRU-32
AGM-84H (SLAM ER)
BRU-32
AGM-154 (JSOW)
BRU-32
AGM-88 (HARM)
LAU-118
CONVENTIONAL BOMBS OR MINES
BRU-32, BRU-33 AND MER/BRU-41
GBU-31 (JDAM)
BRU-32
GUIDED WEAPON CONTROL
MONITOR SET AN/AWW-13
(ADVANCED DATA LINK POD)
BRU-32
ROCKET PODS
BRU-33
CNU-188 (BAGGAGE CARRIER)
BRU-32

RIGHT WINGTIP
WEAPON STATION 9

AIM-9 (SIDEWINDER)
LAU-7

00700202

Figure 2. Station Stores Configuration After F/A-18 AFC 253 or AFC 292 (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

DESCRIPTION - SYSTEM FUNCTIONS

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Simplified Schematic WP009 00

Alphabetical Index

Subject	Page No.
Aircraft Master Mode Select	4
Built-In Test - 161365 thru 163175 Before F/A-18 AFC 253 or AFC 292	10
Built-In Test - 161365 thru 163175 After AFC 253 or 292	12
Emergency Jettison	10
Introduction	2
Landing Gear Interlocks	3
Master Arm	3
Mux Bus Interface	2
Priority Release Sequence	8
Selective Jettison/Auxiliary Release	8
Simulation Mode	3
Stores Inventory	7
System Function Description	2
Weapon Initialization	4
Weapon Release	8
Weapon Select	7
Weapon Station Power Control	5

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 037	16 Feb 84	Deletion of Landing Gear Handle Logic from AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores management system (SMS) functions are provided in this work package (WP). Additional description and operation WPs are listed in WP001 00.

3. Refer to WP009 00 for simplified schematics of SMS operation.

4. Refer to WP014 00 for component location.

5. SYSTEM FUNCTION DESCRIPTION.

6. The SMS uses aircraft switching and related systems to provide system functions listed below:

a. mux bus interface

b. simulation mode

c. landing gear interlocks

d. master arm

e. aircraft master mode select

f. weapon initialization

g. weapon station power control

h. stores inventory

i. weapon select

j. priority release sequence

k. weapon release

l. selective jettison/auxiliary release

m. emergency jettison

n. built-in test

7. **MUX BUS INTERFACE.** The SMS uses multiplex data signal processing to interface the mission computer (MC) system and encoder-decoders for the weapon stations.

8. The Armament Computer CP-1342/AYQ-9(V) and Command Launch Computer CP-1001( )/AWG are on an avionic mux bus with the MC system. The MC system controls to/from communications with the SMS.

9. The armament computer and weapon station encoder-decoders are on armament mux bus. The armament computer controls the to/from communications with the encoder-decoders. Armament mux bus data words/signals are in WP016 00.

10. **Multiplex Data Signal Processing.** Multiplex data signal processing is used for avionic mux and the armament mux buses. This process is a method of sending multiple signals on a two wire transmission line (mux bus) by use of time sharing.

11. Detailed description of the mission computer system interface is in A1-F18AC-741-100, WP006 00. Armament mux bus operation is in WP017 00, in this manual.

12. **Memory Load/Verifier Function.** On 161702 AND UP, the armament computer software can be

loaded/changed on the aircraft. This function is provided using the Computer Memory Loader/Verifier (MLV) AN/ASM-607(V)5. Avionic mux bus is used to transfer data between the MLV and armament computer with the MC system off.

13. **SIMULATION MODE (SIM)**. SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. For detailed description of SIM mode operation refer to WP026 01.

14. **LANDING GEAR INTERLOCKS.** The weight off wheels and LDG GEAR control (handle) provide safety interlocks for weapon release functions. Landing gear interlocks are shown on SMS discrete switching simplified schematic (WP013 00). Landing gear interlocks are discrete signal inputs to the SMS. Interlocks required for SMS are listed below:

a. Weight off wheels.

b. LDG GEAR control (handle)

c. All gear up and locked.

15. **Weight Off Wheels.** The SMS uses three weight off wheels (WOW) interlocks. These discrete signals exist when the aircraft is not sitting with weight on wheels.

16. Left main landing gear (LMG) WOW relay no. 2 sends a ground input to the armament computer when energized. Weight off wheels input is used to control HARM weapon power control and weapon release inhibit functions.

17. Right main landing gear (RMG) WOW relay no. 3 is used as part of the master arm system interlock function. A RMG weight off wheels discrete ground from the landing gear control unit is sent to the armament computer for emergency jettison circuit interlocks.

18. **LDG GEAR CONTROL - 161353 THRU 161987 BEFORE F/A-18 AFC 37**. The SMS requires LDG GEAR control handle position data for emergency jettison, electrical fuzing, and master arm functions.

19. When the LDG GEAR control handle is UP, the SMS receives discrete signals to enable functions listed below:

a. Enables master arm when RMG WOW relay no. 3 is energized.

b. Enables power on relay to the electrical fuzing power supply when all gear up and locked relay is energized.

c. Provides a discrete ground input to the armament computer emergency jettison circuits.

20. When LDG GEAR control handle is DOWN, the ARMAMENT OVERRIDE switch option is enabled.

21. **LDG GEAR CONTROL - 162394 AND UP, ALSO 161353 THRU 161987 AFTER F/A-18 AFC-37.** The LDG GEAR control operation is identical to paragraphs 18, 19 and 20 except the LDG GEAR control is bypassed for electrical fuzing.

22. **All Gear Up And Locked.** The all gear up and locked relay energizes when left and right MLG and nose landing gear are all up and locked. When the relay is energized, a ground discrete is sent to the armament computer to do stores inventory, enable weapon release and electrical fuzing functions. These functions are disabled when the gear is down. This function is also sent to the MC system in the form of multiplex data.

23. **MASTER ARM.** The MASTER switch on the master arm control panel provides SAFE-ARM options for weapon release. When set to ARM and weight off wheels or armament override, a 28vdc discrete is sent to the armament computer. Weapon release functions, except for emergency jettison, are disabled when the MASTER switch is set to SAFE.

24. During ground operations when the LDG GEAR control handle is DOWN, ARM can be selected by the ARMAMENT OVERRIDE switch. Arm can be selected by setting the MASTER switch to ARM and then engaging the ARMAMENT OVERRIDE switch. The ARMAMENT OVERRIDE switch bypasses RMG WOW relay no. 3 and landing gear control handle and sends a 28vdc override signal to the armament computer.

25. The SAFE or ARM status of the MASTER switch is sent to the MC system to provide display status.

26. Release consent relays in Aircraft Wing Pylon SUU-63( ) for weapon stations 2, 3, 7 and 8 are energized by 28vdc ARM.

27. **AIRCRAFT MASTER MODE SELECT.** The armament computer provides aircraft master mode select and sends select data to the MC system by way of avionic mux bus. The MC system initializes master mode function and advises avionic systems on the aircraft which require master mode status. Aircraft master modes are air to air (A/A), air to ground (A/G) and navigation (NAV). When A/A or A/G master modes are not selected, aircraft master mode is NAV.

28. A/A and A/G master modes are selected by pressing A/G or A/A on the master arm control panel assembly. On F/A-18B, A/G and A/A modes can be selected by pressing A/G or A/A on the master mode select panel assembly on rear main instrument panel.

29. A/A master mode can also be selected by selecting gun, AIM-120 (AFTER AFC 253 or 292), AIM-7, or AIM-9 on the A/A weapon select switch on the aircraft controller grip assembly.

30. The armament computer controls the logic for discrete select inputs and discrete outputs to turn on the lights. Select inputs to the armament computer are a function of select/deselect. Pressing the switch selects the mode. Pressing the switch will deselect the mode.

31. The armament computer aircraft master mode select logic also provides weapon mode select to lock/unlock function. Selecting A/A will cause all launchers with A/A weapons loaded to unlock when all gear up and locked is set true. Selecting A/G will cause all launchers/racks with A/G weapons loaded to unlock when all gear up and locked is set true.

32. At SMS power on, the armament computer will initialize in NAV mode. When armament computer power is interrupted with weight off wheels, the armament computer will initialize in the master mode selected before the power interruption.

33. The MC system automatically selects NAV mode when weight is not on wheels and gear is down or when weight is on wheels and Power Level Angle (PLA) is greater than 56° on 161353 THRU 161528 or greater than 60° on 161702 AND UP. The MC system also automatically selects NAV mode when aircraft is in a spin mode, when AUTO SPIN is selected or when spin recovery is in progress. The mission computer system sends NAV mode select to the armament computer. The NAV mode select resets all armament computer A/A and A/G logic and inhibits the trigger or weapon release switch from firing, launching, or releasing any weapon.

34. **WEAPON INITIALIZATION.** Each time power is applied to the SMS, the software program in the armament computer does the weapon initialization routine. This routine applies power to all the components of the SMS and tests system BIT, weapon inventory, and weapon power control requirements.

35. After armament computer internal BIT is completed, the nine encoder-decoders are sequentially turned on. The encoder-decoders are tested for store idents, BIT and station status. This weapon and system data is recorded in the armament computer memory to be transmitted to the MC system when communication is established and stored for internal computer computations.

36. Weapon initialization is done on all encoder-decoders. Test functions not applicable to the weapon station or weapon loaded on the weapon station are not tested. Initialization functions are listed below:

a. encoder-decoder status

b. weapon identification

c. roll rate limit

d. rack/launcher lock status

e. weapon power control

f. gun encoder-decoder initialization

37. **Encoder-Decoder Status.** The armament computer monitors the encoder-decoder on and signal to determine the presence of the encoder-decoder. The armament computer turns on the encoder-decoder and tests armament mux bus communications. If no communication exists for five seconds, the encoder-decoder is failed. On aircraft, AFTER AFC 253 or 292, the computer attempts up to three times on one bus line then up to three times on the other line. If no communication exists for these six attempts, the encoder-decoder is failed.

38. **Weapon Identification.** The armament computer monitors weapon idents for the weapon station the encoder-decoder controls. If no ident exists, BIT is done and the encoder-decoder is turned off.

39. When a weapon station ident exists, the ident is compared to the weapon insertion panel ARMAMENT switch setting for the station under test. If ident and switch setting differ, a load failure exists and the encoder-decoder is turned off until the load failure is corrected.

40. If no load failure exists, the armament computer determines if the weapon is an A/G weapon that requires fuzing. When fuzing is required by the weapon, FUZE switches on the weapon insertion panel are tested for compatibility with the weapon. A fuze failure is set if weapon and fuze codes are not compatible. The encoder-decoder is turned off until the fuze failure is corrected.

41. **Roll Rate Limit.** The armament computer will set roll rate limit and roll rate limit valid if the ident on a wing pylon weapon station is an A/G weapon or external fuel tank. Roll rate limit and roll rate limit valid are also set when a load fault occurs that is caused by BRU-32 hooks closed with incorrect weapon ident/store code or no store aboard that station.

42. **Rack/ Launcher Lock Status.** The armament computer controls lock/unlock functions of Aircraft Guided Missile Launchers LAU-115( ), LAU-116( ), LAU-117( ), LAU-118( ), LAU-127( ) and Aircraft Bomb Ejector Racks BRU-32( ) and BRU-33( ). Each launcher/rack provides a lock or unlock monitor signal to the armament computer.

43. When the all gear up and locked discrete is not true (gear down), all launchers/racks with store idents are locked. When all gear up and locked is set true (gear up), switch logic to unlock the launchers is enabled.

44. With all gear up and locked, launchers with A/A weapon idents will unlock when A/A aircraft master mode is selected. Launchers/racks with A/G store idents will unlock when A/G aircraft master mode is selected. A/A and A/G launchers and racks will all unlock when the SELECT JETT switch is set to any position other than SAFE.

45. The armament computer updates the launcher lock/unlock status at the times listed:

a. power up

b. gear up

c. periodic BIT

d. after trigger or weapon release

e. gear down

46. When a store is sensed on a weapon station and the weapon code for that station is set to no store or a spare code, the armament computer sends rack lock drive to the station and keeps the rack locked.

47. When the armament computer determines that a BRU-32 failed to unlock, the data is sent to the MC system. The MC system will send display data for stores display to display UNLK by a pushbutton switch. Pressing the pushbutton switch will enable lock override solenoid on the BRU-32 parent rack to unlock the rack.

48. **Weapon Power Control.** When an ident exists, no load or fuze fault exists, and rack/launcher for the weapon station is correct, the armament computer determines if the weapon requires aircraft power. If required, weapon power control discretes are set to enable weapon power as described in paragraph 52.

49. With power applied to the weapon, the armament computer runs a BIT test on the encoder-decoder. At completion of BIT, the encoder-decoder is turned off but the weapon station power control remains set to keep power on the weapon.

50. After weapon initialization routine is completed for all encoder-decoders, the armament computer sets equipment ready discrete to the MC system. The armament computer transmits stores inventory and BIT status of the SMS to the MC system.

51. **Gun Encoder-Decoder Initialization.** The gun encoder-decoder presence and communications ability test is described in WP007 00. When communications are established, the armament computer tests the last rounds/rounds limit and rounds remaining data and does BIT on the encoder-decoder. After BIT is completed, the encoder-decoder is turned off.

52. **WEAPON STATION POWER CONTROL.** Weapon station power control is set by the armament computer. When the armament computer determines that a weapon requires aircraft power, a

discrete enable is sent to weapon station power control relay to energize the relay. When the relay energizes, aircraft power is applied to the weapon station. Weapons which require aircraft power are listed below:

a. AIM-7 Sparrow

b. AIM-9 Sidewinder

c. AGM-65 Maverick

d. AGM-88 HARM

e. AGM-84 Harpoon

f. AGM-45 Shrike

g. With ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM

h. AGM-84H SLAM ER (AFTER AFC 253 OR 292)

i. AIM-120 AMRAAM (AFTER AFC 253 OR 292)

j. AGM-154 JSOW (AFTER AFC 253 OR 292)

k. GBU-31 JDAM (AFTER AFC 253 OR 292)

53. **AIM-7 Sparrow Power Control.** The AIM-7 requires 115vac 400 Hz 3 phase aircraft power. When AIM-7 ident exists, station power control discrete is set and power is applied to the weapon station.

54. **AIM-9 Sidewinder Power Control.** The AIM-9 requires 115vac 400 Hz Phase A aircraft power. When AIM-9 ident exists, the armament computer sets the weapon station power control discrete and power is applied to the weapon station.

55. **AGM-65 Maverick Power Control.** The AGM-65 requires 115vac 400 Hz 3 phase aircraft power. When AGM-65 ident exists, the armament computer sets weapon station power control discrete and power is applied to the weapon station.

56. **AGM-88 Harm Power Control.** The AGM-88 requires two power control discrete signals. When AGM-88 ident exists with weight on wheels, the armament computer sets a weapon station phase C power control discrete to energize weapon station phase C power control relay. During initiated BIT and when weight off wheels is true, the armament computer sets weapon station power control discrete and 3 phase power is applied to the weapon station.

57. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, the armament computer sets a third discrete to energize the 28vdc power control relay. The relay is energized when master arm logic in the armament computer is satisfied.

58. **AGM-84 Harpoon Power Control - 162394 AND UP; ALSO 161353 THRU 161987 F/A-18 AFTER AFC 74.** The AGM-84 Harpoon requires 28vdc, 115vac 400 Hz phase C, and 115vac 400 Hz three phase aircraft power. When harpoon ident exists, the 115vac 400 Hz phase C power control relay is enabled by the armament computer immediately after power up BIT. After all gear up and locked is true and A/G mode selected, either harpoon select or Master Arm switch set to ARM causes armament computer to set weapon station 28vdc power control relay. When harpoon is selected, the armament computer energizes the 115vac 400 Hz three phase station (weapon) power control relay and deenergizes the 115vac 400 Hz phase C power control relay.

59. **AGM-45 Shrike Power Control.** The AGM-45 Shrike requires 28vdc, 115vac 400 Hz phase B, and phase C aircraft power. When Shrike ident exists, the 115vac 400Hz power control relay is enabled by the armament computer immediately after power up BIT. The 28vdc is supplied by the armament computer when the Master Arm switch is set. When Shrike is selected, the armament computer supplies the 115vac phase B power.

60. **WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM Power Control.** The AGM-84E SLAM requires 28vdc, 115vac 400 Hz phase C, and 115vac 400 Hz three phase aircraft power. When SLAM ident exists, the 115vac 400 Hz phase C power control relay is enabled by the armament computer immediately after power up BIT. After all gear up and locked is true and A/G mode selected, either SLAM select or Master Arm switch set to ARM causes armament computer to set weapon station 28vdc power control relay. When SLAM is selected, the armament computer energizes the 115vac 400 Hz three phase station (weapon) power control relay and deenergizes the 115vac 400 Hz phase C power control relay.

61. **AGM-84H SLAM ER Power Control.** The AGM-84H SLAM ER requires 28vdc and 115vac 400

Hz three phase aircraft power. When SLAM ER ident exists, the station power control relay is enabled by the armament computer immediately after power up BIT. SLAM ER present and not hung or failed causes armament computer to maintain power to the weapon station until the SLAM ER status is gone.

62. **AIM-120 AMRAAM Power Control.** The AIM-120 requires 115vac 400 Hz 3 phase aircraft power. When AIM-120 ident exists, station power control discrete is set and power is applied to the weapon station.

63. **AGM-154 JSOW Power Control.** The AGM-154 JSOW requires 28vdc and 115vac 400 Hz three phase aircraft power. When JSOW ident exists, the station power control relay is enabled by the armament computer immediately after power up BIT. After weapon BIT, 115vac, 3Ø power is removed. 28vdc no. 1 power remains as standby power. When JSOW is selected, the armament computer energizes the 115vac 400 Hz three phase station (weapon) power control relay.

64. **GBU-31 JDAM Power Control.** The GBU-31 JDAM requires 28vdc and 115vac 400 Hz three phase aircraft power. When JDAM ident exists, the station power control relay is enabled by the armament computer immediately after power up BIT. Power is removed after mission data loading. After all gear up and locked is true and A/G mode selected, either JDAM select or Master Arm switch set to ARM causes armament computer to set weapon station power control relay.

65. **STORES INVENTORY.** When weapon initialization has been completed on all weapon station encoder-decoders, an equipment ready discrete from the armament computer is sent to the MC system. The equipment ready signal lets the MC system know it is ready to communicate on avionic mux bus.

66. Weapon station data stored in memory during weapon initialization routine is sent to the MC system. Data listed below makes up the stores inventory:

a. encoder-decoder/status

b. weapon idents for each station

c. weapon status

d. rack/launcher status

e. SMS BIT status

67. The MC system uses stores inventory to send stores displays to the multipurpose display group and uses the data for weapon select and weapon prelaunch computations.

68. Stores inventory is done by the armament computer and sent to the MC system when any of the system functions below occurs:

a. power on BIT

b. weapon release

c. emergency jettison

d. all gear up and locked discrete is received by the armament computer

e. after a power transient

69. **WEAPON SELECT.** Weapon select signals are sent to the MC system to enable the computation function related to the weapon selected. The MC system sends this data to the multipurpose display group for display and the armament computer to verify that the MC system is ready to process data for the selected weapon.

70. A/A weapons are selected by the A/A weapon select switch on the aircraft controller grip assembly. On F/A-18B, the A/A weapon select switch on the rear aircraft controller grip assembly can select A/A weapons after the A/A aircraft master mode has been selected. A/A weapon select functions are discrete inputs to the armament computer. A/A select data is sent to the MC system. Selecting A/A aircraft master mode automatically selects the priority AIM-9 station.

71. A/G weapons are selected by pushbutton switches on the Digital Display Indicator IP-1317( ) (DDI) which has the stores display. When A/G aircraft master mode is selected, each different type of A/G weapon or store on the aircraft will appear as an acronym on the top row of pushbutton switches on the DDI. Pressing the pushbutton switch for the weapon, selects that weapon. The pushbutton switch (pressed) data is sent to the MC system. The MC system sends weapon select function to the DDI for select status displays and to the SMS. With A/G selected, the STEP pushbutton switch option on the right row of pushbutton switches on the DDI is available for priority release sequence function.

72. The armament computer receives weapon select data from the MC system and turns on all encoder-decoders which control stations for the selected weap-

on. The armament computer selects the first weapon station in the priority release sequence.

73. **PRIORITY RELEASE SEQUENCE.** The software program in the armament computer selects which station will be fired first for the selected weapon. The release sequence for weapons is shown in table 4, priority weapon station release sequence, WP015 00.

74. AIM-9 Sidewinder, AIM-7 Sparrow and AIM-120 AMRAAM priority stations can be stepped one station in the priority release sequence, each time the weapon is reselected on the aircraft controller grip assembly.

75. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, when AIM-7M and AIM-7F sparrow are loaded, AIM-7M weapon stations will automatically be selected in priority for release before AIM-7F weapon stations. Using the A/A weapon select switch on the aircraft controller grip assembly to step the priority station allows manual selection of either AIM-7F or AIM-7M stations for launch.

76. When AIM-9M and AIM-9L sidewinders are loaded, AIM-9M weapon station will automatically be selected in priority for release before AIM-9L weapon stations. Using the A/A weapon select switch on the aircraft controller grip assembly to step the priority station allows manual selection of either AIM-9M or AIM-9L stations for launch.

77. A/G weapons can be stepped one station in the priority release sequence each time the STEP pushbutton switch on the DDI is pressed.

78. The armament computer removes failed weapon/stations from the release sequence. These stations are bypassed during normal release sequence of the good weapons. When the good weapon stations have been fired, the failed stations and the stations that may have hung/failed during release are made available for selective jettison in the release sequence.

79. The armament computer keeps the priority station number for each weapon type. When a weapon type is deselected and reselected, the station which was in priority before deselecting the weapon type will be in priority when that weapon type is reselected.

80. **WEAPON RELEASE.** Weapon release is initiated by the switches listed below:

a. SELECT JETT switch

b. EMERG JETT switch

c. A/G weapon release switch

d. Gun/A/A missile trigger switch

81. The armament computer produces excitation signals and monitors switch activate functions of the switches. Switch functions are tested during BIT and monitored during normal SMS operation.

82. Switch excitation signals are digital coded signals. Digital coding is monitored as excitation and switch activate (return) signals for compatibility before being sent to the weapon release circuit. The digital coding circuits make sure that component or wiring failures and EMI interference will not cause an inadvertent weapon release.

83. The SELECT JETT, A/G weapon release, and Gun/A/A missile trigger switches use the same excitation signal. The EMERG JETT switch excitation circuit is powered by essential 24/28vdc aircraft power and is isolated from other armament computer circuits.

84. The armament computer uses the weapon release signal to produce the release function for weapon selected and station to be fired. Release signals are sent to the encoder-decoder by way of the armament mux bus. The encoder-decoder changes the mux data release signals to 28vdc release signals and sends them to the weapon/bomb rack.

85. When weapon release from the BRU-32 is needed, release consent relays in the pylons must be energized. The relays are energized during normal release, selective jettison and auxiliary release operation. Emergency jettison release signals do not use release consent relays.

86. **SELECTIVE JETTISON/AUXILIARY RELEASE.** Selective jettison enables release of stores/weapons on racks/launchers from the weapon stations. Selective jettison is available for all weapon stations except the wing tip AIM-9 weapon stations. Auxiliary release provides a gravity release of stores attached to the pylon BRU-32 when normal release and selective jettison release have failed. Selective jettison/auxiliary release description is provided as listed below:

a. SELECT JETT switch

b. JETT STATION SELECT switches

c. selective jettison release enable

d. stores jettison

e. auxiliary release

87. **SELECT JETT Switch.** The SELECT JETT switch is on LH vertical console control panel. Selective jettison functions are selected by the five position rotary switch on the SELECT JETT switch. The switch also has a center pushbutton JETT switch which enables jettison when pressed. The armament computer provides excitation for the JETT pushbutton switch. This excitation uses a digital coded signal to prevent inadvertent weapon release.

88. When the SELECT JETT switch is set to any position other than SAFE, all locked launchers/racks will unlock.

89. **JETT STATION SELECT Switches.** When jettison is to be done from one of the five pylon weapon stations, the JETT STATION select switch for that station is selected. The JETT STATION SELECT switch is on the flaps, landing gear and stores indicator panel.

90. **Selective Jettison Release Enable.** For safety, some system functions must be satisfied to enable a jettison release signal. The functions required to enable release are listed below:

a. Jettison function selected, SELECT JETT rotary switch.

b. Pylon station(s) selected, JETT STATION SELECT switches (pylon weapon stations only).

c. Rack or launcher unlocked as listed below:

(1) L or R FUS MSL - LAU-116 launcher.

(2) STORES - BRU-32 or BRU-33 racks.

(3) RACK LCHR - BRU-32 rack.

d. All gear up and locked (left and right fuselage AIM-7 stations only).

e. MASTER switch set to ARM, master arm control panel assembly.

f. JETT pushbutton pressed, SELECT JETT switch.

91. **Stores Jettison.** The SELECT JETT switch selects the type of jettison to be used; however some weapon stations have limitations. Weapon type, weapon station selected for jettison, and jettison function selected determine what to jettison from the aircraft. Weapon jettison release options are listed below:

a. AIM-7 fuselage weapon stations. Missile is ejected from LAU-116 (L FUS MSL or R FUS MSL selected).

b. AIM-7 pylon weapon stations. LAU-115 is ejected from BRU-32 with AIM-7 attached (STORES or RACK LCHR selected).

c. AIM-9 pylon weapon stations. LAU-115 is ejected from BRU-32 with LAU-7 launcher and AIM-9 attached or, on aircraft AFTER AFC 253 OR 292, with LAU-127( ) launcher and AIM-9 attached (STORES or RACK LCHR selected).

d. AGM-65 Maverick. LAU-117 is ejected from BRU-32 with AGM-65 attached (STORES or RACK LCHR selected).

e. AGM-84 Harpoon or SLAM. Ejected from BRU-32 (STORES selected).

f. AGM-88 HARM. Three phase power is applied to the weapon station and the missile is fired from the LAU-118 (STORES selected).

g. Bombs and rocket pods on BRU-33. Bombs and rocket pods are ejected from BRU-33 (STORES selected).

h. BRU-33. Ejected from BRU-32 (RACK LCHR selected).

i. Single bombs. Ejected from BRU-32 (STORES selected).

j. Fuel tanks. Ejected from BRU-32 (STORES selected).

k. Data link pod. Ejected from BRU-32 (STORES selected).

l. AGM-45 Shrike. LAU-118 is ejected from BRU-32 with AGM-45 attached.

m. With ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM. Ejected from BRU-32 (STORES selected).

n. AIM-120 fuselage weapon stations. Missile is ejected from LAU-116 (L FUS MSL or R FUS MSL selected) (AFTER AFC 253 OR 292).

o. AIM-120 pylon weapon stations. LAU-115 is ejected from BRU-32 with LAU-127/A launcher and

AIM-120 attached (STORES or RACK LCHR selected) (AFTER AFC 253 OR 292).

p. AGM-84H SLAM ER. Three phase power and 28vdc number 1 power are applied to the weapon. The aircraft waits 500 milliseconds for the weapon to power up. The jettison mode command and erase command is sent to the weapon on the armament mux bus. The weapon is then ejected from BRU-32 (STORES selected) (AFTER AFC 253 OR 292).

q. AGM-154 JSOW. Three phase power is applied to the weapon. The aircraft waits 500 milliseconds for the weapon to power up. The jettison mode command and erase command is sent to the weapon on the armament mux bus. The weapon is then ejected from BRU-32 (STORES selected) (AFTER AFC 253 OR 292).

r. GBU-31 JDAM. Three phase power and 28vdc number 1 power are applied to the weapon. The aircraft waits 500 milliseconds for the weapon to power up. The jettison mode command and erase command is sent to the weapon on the armament mux bus. The weapon is then ejected BRU-32 (STORES selected) (AFTER AFC 253 OR 292).

92. **Auxiliary Release.** Auxiliary release is available on pylon weapon stations which failed to release during selective jettison. Auxiliary release fires an auxiliary cartridge in the BRU-32 to enable a gravity release of the weapon/store or rack/launcher.

93. To enable auxiliary releases the AUX REL switch on ECM control panel assembly is set to ENABLE. Pressing JETT on SELECT JETT switch enables the fire signal to the auxiliary breech cartridge in the BRU-32.

94. **EMERGENCY JETTISON.** Emergency jettison releases all stores, weapons, launchers, and racks attached to the BRU-32 on pylon weapon stations. Emergency jettison circuits in the armament computer and the encoder-decoders for pylon weapon stations operate independently from all other component functions. These circuits are powered by essential 24/28vdc bus which enables them to function when aircraft power or SMS is failed or off.

95. The armament computer applies digital coded in phase signals to the EMERG JETT switch on the master arm control panel assembly. When EMERG JETT is pressed, excitation signals are sent back to the armament computer out of phase. The out of phase signals are sent on discrete wires to the five encoder-decoders for the pylons as emergency jettison 1 and 2. When emergency jettison 1 and 2 are out of phase, the encoder-decoder applies 24/28vdc to the lock override solenoid and forward and aft breech cartridges on the BRU-32.

96. Weight off wheels or LDG GEAR control handle up must be true to enable emergency jettison circuits. Weapon station release sequence for emergency jettison is listed below:

a. left/right outboard wing pylon stations

b. left/right inboard wing pylon stations

c. centerline pylon station

97. Stores inventory is done 300 ± 20 milliseconds after actuation of the EMERG JETT switch. If store aboard or store ID is true, station status is updated to hung.

98. **BUILT-IN TEST - Before AFC 253 or AFC 292.** The SMS does power on, initiated, maintenance and periodic BIT. These BIT functions determine station/weapon status of the SMS components. Initiated and periodic BIT also do the system degrade assessment function of BIT. BIT description is provided as listed below:

a. BIT displays

b. power on BIT

c. initiated BIT

d. maintenance BIT

e. periodic BIT

f. degrade assessment

99. **BIT Displays.** BIT data is displayed on the BIT control display on the left or right DDI and as maintenance codes on Digital Display Indicator ID-2150/ ASM-612 in the nose wheelwell. The armament computer and command launch computer send BIT data to the MC system on avionic mux bus. BIT displays are provided as listed below:

a. Digital Display Indicator IP-1317( ) (DDI) displays

b. Digital Display Indicator ID-2150/ASM-612 (nose wheelwell DDI) displays

100. Digital Display Indicator IP-1317( ) Displays. BIT data is sent to the DDI for display. When stores display is selected, status messages for the weapons are displayed. When BIT control display is selected, system BIT status messages are displayed. In WP015 00, table 6 lists BIT status message displays and interprets the display.

101. Digital Display Indicator ID-2150/ASM-612 Displays. Component fail data is sent to the maintenance status display and recording system (MSDRS) by way of the MC system. The MSDRS provides three digit maintenance code display on the nosewheel DDI. The three digit maintenance code is representative of a failed component. WP015 00, table 5, lists SMS system maintenance codes.

102. BIT Latch Indicators. BIT latch indicators are located on the component. BIT latch indicator software logic in the armament computer is not operational. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, BIT latch indicators are removed from the wingtip, pylon, and fuselage command signal encoder-decoders.

103. **Power On BIT.** Power on BIT is done when power is applied to the SMS. At power on, the armament computer does an internal BIT and then does BIT on the encoder-decoders.

104. After the first 20 seconds of power on BIT, the armament computer sends equipment ready discrete to the MC system. When this discrete is received, the MC system tries to establish communication with the armament computer in order to satisfy the requirements for the terminal test word. The terminal test word verifies communication can be established on the avionic mux bus between the armament computer and the MC system. The armament computer accepts and responds to the terminal test word. However, not until after the first 180 seconds when power on BIT ends, will the armament computer process commands or send initialization BIT data to the MC system.

105. **Initiated BIT.** Initiated BIT is selected by the pushbutton switches on the DDI BIT control display. Initiated BIT does the same tests as power up BIT, plus it does BIT on the electrical fuzing power supply, and command launch computer. Further, BIT tests are done if a HARM ident exists on a weapon station.

106. When a HARM ident exists for the weapon station under test, the armament computer enables 3 phase power to the weapon station and turns on the command launch computer. Command launch computer does BIT on the HARM weapon. Command launch computer and HARM weapon BIT status is sent to the MC system.

107. **Maintenance BIT.** Maintenance BIT tests the components of the SMS except for the command launch computer. This BIT also provides a functional test of switches used for weapon release. At completion of the component test, switch test options are displayed on the DDI maintenance BIT control display. Switches tested are listed below:

Display Acronym	Cockpit Control
SJET	SELECT JETT switch
PCKL	A/G weapon release switch
TRIG	Gun/A/A missile trigger switch
SSP	JETT STATION SELECT switches

108. **Periodic BIT.** Periodic BIT is an armament computer software controlled BIT function. This BIT is done every 60 seconds, when a weapon is selected or when aircraft master mode A/A or A/G is selected. Periodic BIT is stopped when weapon release is received or when an A/G program change signal exists.

109. Periodic BIT tests the functions of the SMS related to weapon inventory. When the armament computer receives a weapon ident from an encoder-decoder, only the circuits for weapon ident are tested. All circuits are tested if no weapon ident exists. When A/A master mode is selected, all stations with A/A weapons are tested. When A/G master mode is selected, all stations with A/G weapons are tested. When a weapon is selected, stations with the selected weapon are tested.

110. Periodic BIT is also done on all stations with weapons when all gear up and locked is true. At all gear up and locked, rack unlock status, HARM weapon power control, and landing gear interlock functions are tested and degrade assessment is done.

111. **Degrade Assessment.** After initiated BIT is complete or when all gear up and locked is true, a

degrade assessment is done. Degrade assessment tests the operational readiness of the SMS to deliver weapons on the aircraft. This data is sent to the MC system as go/fail/degrade system status.

112. The armament computer can send an operational go status. This status indicates that an SMS fail exists but that the fail does not affect the weapons loaded.

113. **BUILT-IN TEST - AFTER AFC 253 OR 292.** The SMS does power on, initiated, maintenance and periodic BIT. These BIT functions determine station/weapon status of the SMS components. Initiated and periodic BIT also do the system degrade assessment function of BIT. BIT description is provided as listed below:

a. BIT displays

b. power on BIT

c. initiated BIT

d. maintenance BIT

e. periodic BIT

f. degrade assessment

114. **BIT Displays.** BIT data is displayed on the BIT control display on the left or right DDI and as maintenance codes on Aircraft Maintenance Indicator ID-2388/ASQ-194 in the nose wheelwell. The armament computer and command launch computer send BIT data to the MC system on the avionics mux bus. BIT displays are provided as listed below:

a. Digital Display Indicator (DDI) displays

b. Aircraft Maintenance Indicator ID-2388/ASQ-194 (nose wheelwell DDI) displays

115. Digital Display Indicator Displays. BIT data is sent to the DDI for display. When stores display is selected, status messages for the weapons are displayed. When BIT control display is selected, system BIT status messages are displayed. WP018 00 lists BIT status messages displays and interprets the display.

116. BIT status is displayed for STORES category systems on the BIT control display. The STORES BIT display shows system status for SMS, CLC, AWW-4 and WPNS. The station BIT display shows weapon/store status at each weapon station.

117. Aircraft Maintenance Indicator ID-2388/ASQ-194 Displays. Component fail data is sent to the flight incident recorder and monitoring system (FIRAMS) by way of the MC system. The FIRAMS provides three digit maintenance code display on the nosewheel DDI. The three digit maintenance code is representative of a failed component. WP018 00 lists SMS system maintenance codes.

118. **Power On BIT.** Power on BIT is done when power is applied to the SMS. At power on, the armament computer does an internal BIT and then does BIT on the encoder-decoders.

119. After the first 20 seconds of power on BIT, the armament computer sends equipment ready discrete to the MC system. When this discrete is received, the MC system tries to establish communication with the armament computer in order to satisfy the requirements for the terminal test word. The terminal test word verifies communication can be established on the avionic mux bus between the armament computer and the MC system. The armament computer accepts and responds to the terminal test word. SMS power on BIT takes about 180 seconds; however, the MC will allow up to 240 seconds for the armament computer to respond with the terminal test word before declaring the SMS failed. The armament computer will not process commands or send initialization BIT data to the MC system until BIT is complete.

120. **Initiated BIT.** Initiated BIT can be commanded on all of the stores category systems or on each one individually. Initiated BIT is selected by the pushbutton switches on the DDI. Selecting STORES BIT from the BIT control display commands BIT on the SMS, CLC, AWW-4 and WPNS. Each of these systems can be commanded into BIT individually.

121. **Rack Couple/Uncouple Test.** When initial BIT is complete and weight on wheels is TRUE, gear up and locked is FALSE, master mode is NAV, stores aboard detected and no weapon selected, RACK will be displayed as a pilot option, on the stores display. The RACK option provides the pilot a BRU-32 and BRU-33 lock/unlock status test. Status failure will be displayed as UNCPL for BRU-32 and CFAIL for BRU-33. RACK test failure are cleared at aircraft power-up and when RACK test is initiated.

122. When a HARM ident exists for the weapon station under test, the armament computer enables 3 phase power to the weapon station and turns on the command launch computer. Command launch computer does BIT on the HARM weapon. Command launch computer and HARM weapon BIT status is sent to the MC system.

123. When stores capable of self BIT are present, it is performed and a report of store status is provided to the armament computer.

124. **Maintenance BIT.** Maintenance BIT tests the components of the SMS except for the command launch computer. This BIT also provides a functional test of switches used for weapon release. At completion of the component test, switch test options are displayed on the DDI maintenance BIT control display. Switches tested are listed below:

Display Acronym	Cockpit Control
SJET	SELECT JETT switch
PCKL	A/G weapon release switch
TRIG	Gun/A/A missile trigger switch
SSP	JETT STATION SELECT switches
ATRG	aft cockpit right hand controller trigger switch - WITH DIGITAL DATA COMPUTER CONFIG/IDENT 13C AND UP (A1-F18AC-SCM-000).

125. **Periodic BIT.** Periodic BIT is an armament computer software controlled BIT function. This BIT is done every 60 seconds, when a weapon is selected or when aircraft master mode A/A or A/G is selected. Periodic BIT is stopped when weapon release is received or when an A/G program change signal exists.

126. Periodic BIT tests the functions of the SMS related to weapon inventory. When the armament computer receives a weapon ident from an encoder-decoder, only the circuits for weapon ident are tested. All circuits are tested if no weapon ident exists. When A/A master mode is selected, all stations with A/A weapons are tested. When A/G master mode is selected, all stations with A/G weapons are tested. When a weapon is selected, stations with the selected weapon are tested.

127. Periodic BIT is also done on all stations with weapons when all gear up and locked is true. At all gear up and locked, rack unlock status, HARM weapon power control, and landing gear interlock functions are tested and degrade assessment is done.

128. **Degrade Assessment.** After initiated BIT is complete or when all gear up and locked is true, a degrade assessment is done. Degrade assessment tests the operational readiness of the SMS to deliver weapons on the aircraft. This data is sent to the MC system as go/fail/degrade system status.

129. The armament computer can send an operational go status. This status indicates that an SMS fail exists but that the fail does not affect the weapons loaded.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - SYSTEM SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Introduction	1
Stores Management System Block Diagram, Figure 1	2
Stores Management System Simplified Schematic, Figure 2	4

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 37	16 Feb 84	Deletion of Landing Gear Handle Logic from AN/AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The simplified schematics in this work package support the description and operation work packages of the stores management system.

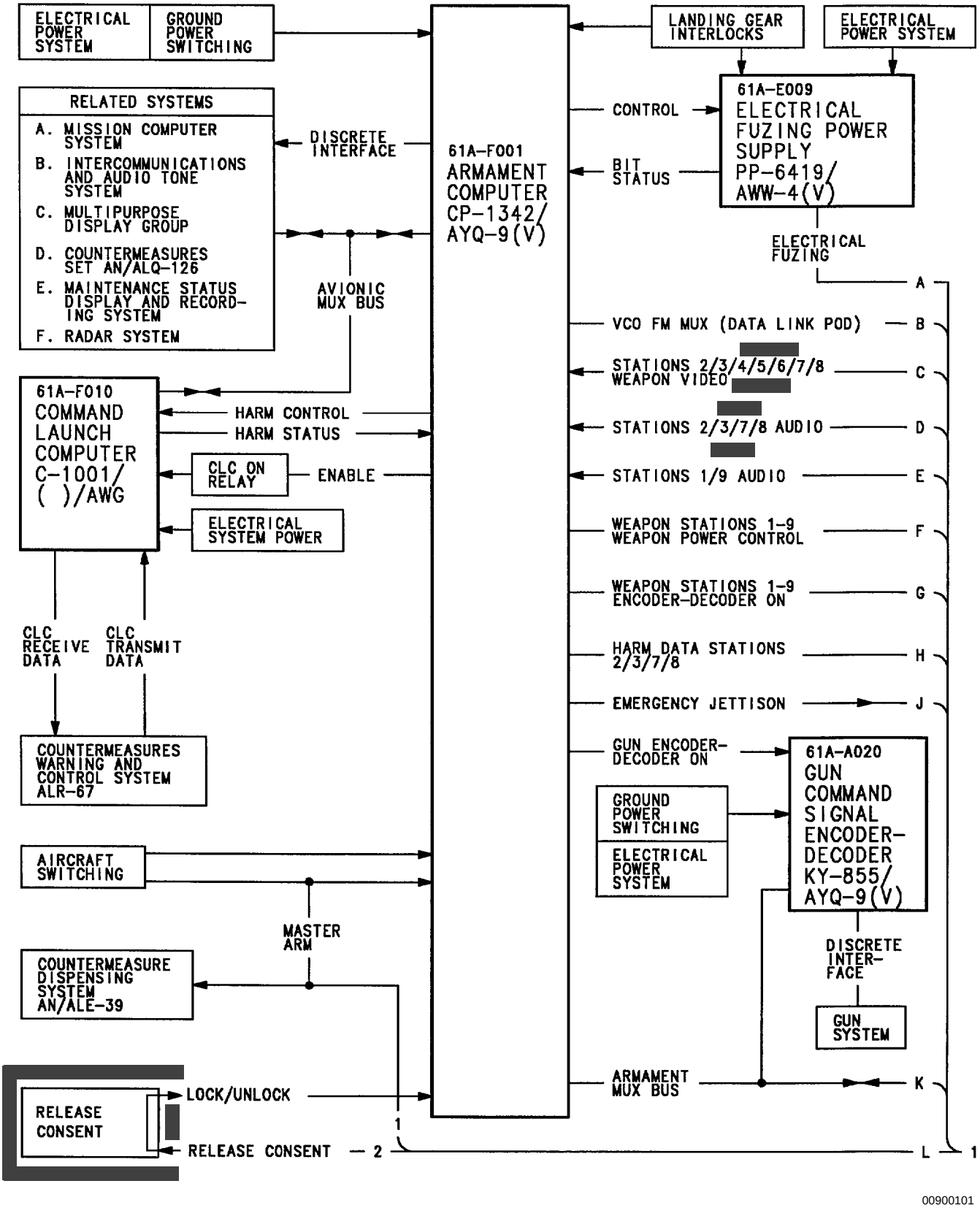
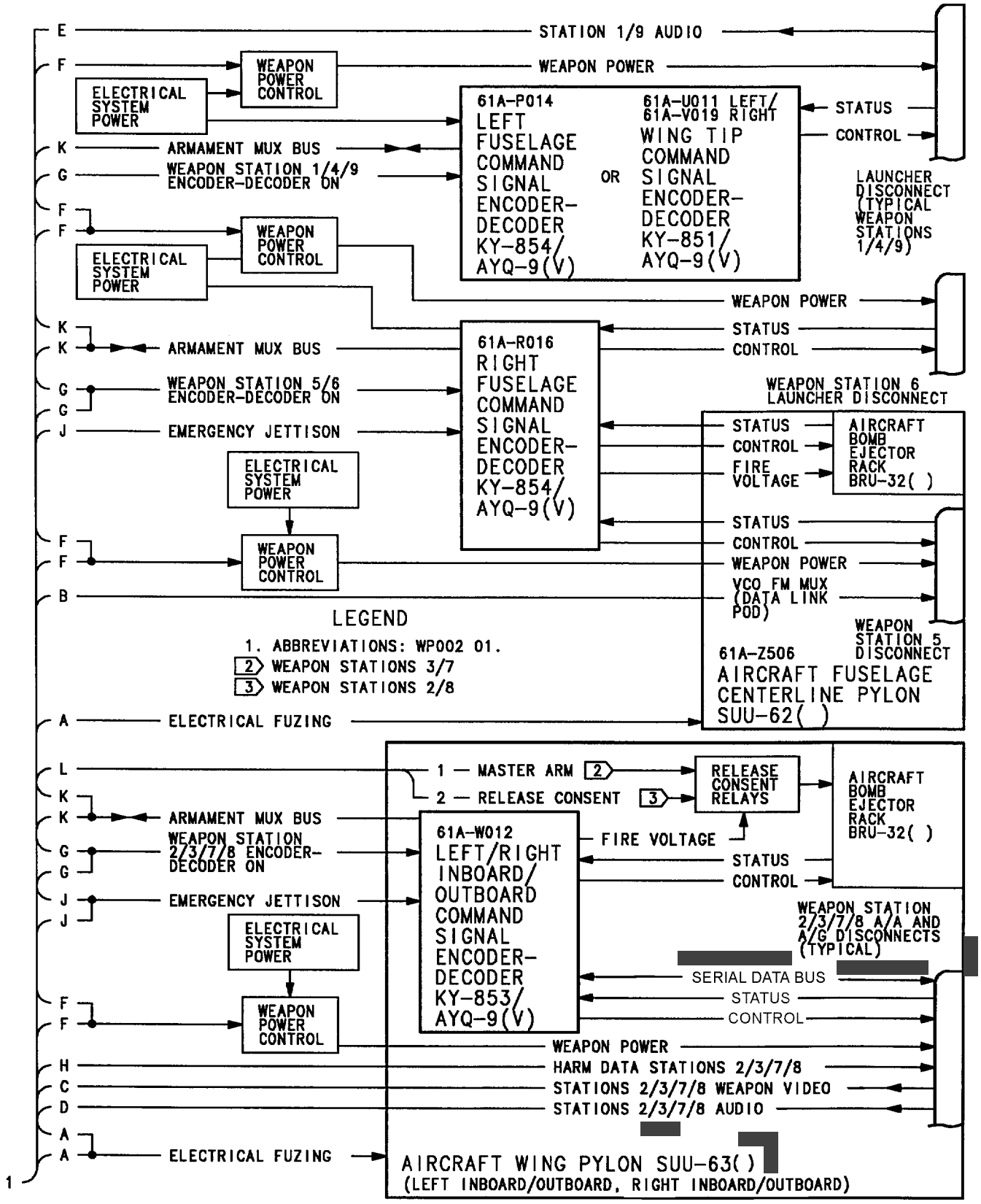


Figure 1. Stores Management System Block Diagram (Sheet 1)



00900102

Figure 1. Stores Management System Block Diagram (Sheet 2)

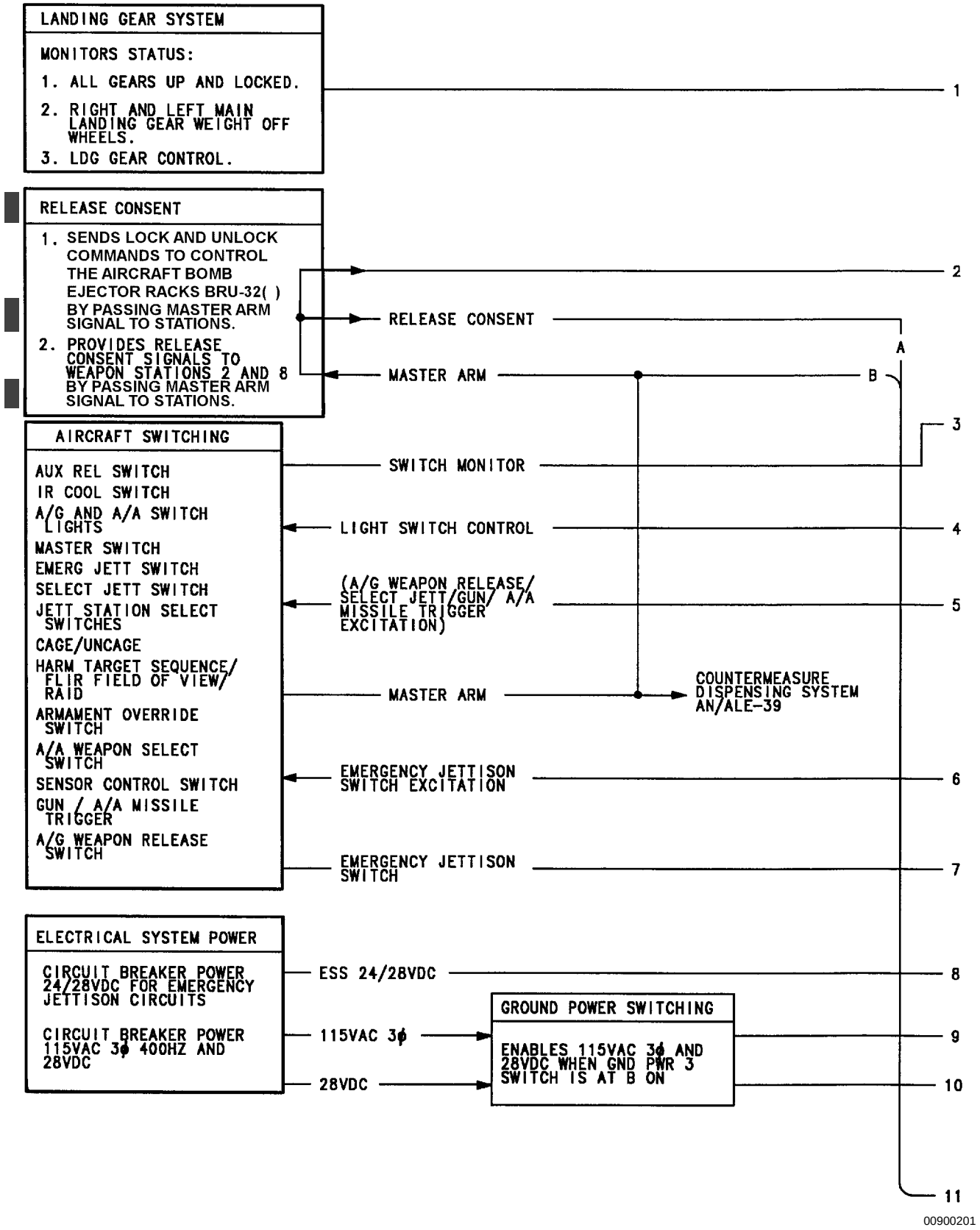


Figure 2. Stores Management System Simplified Schematic (Sheet 1)

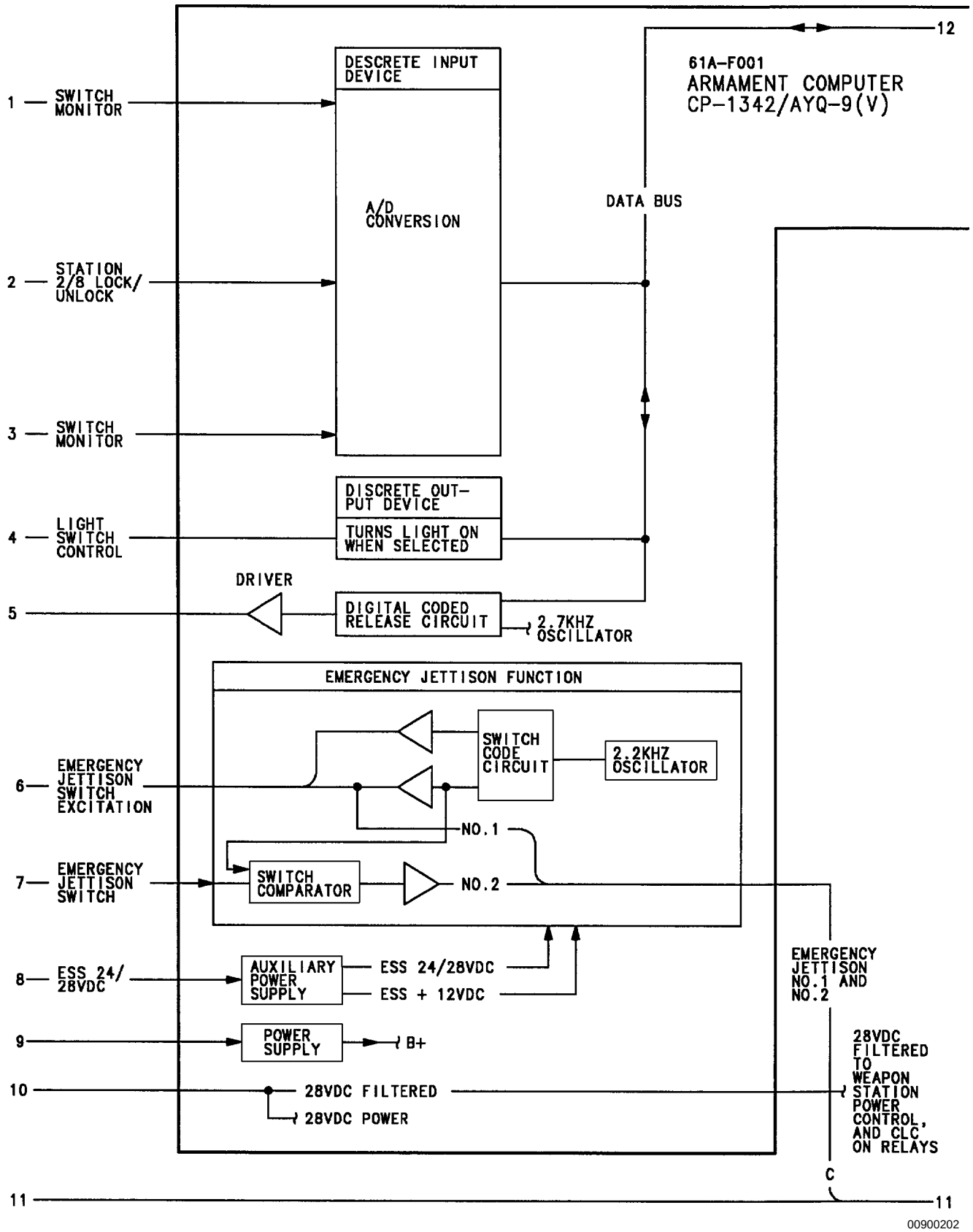
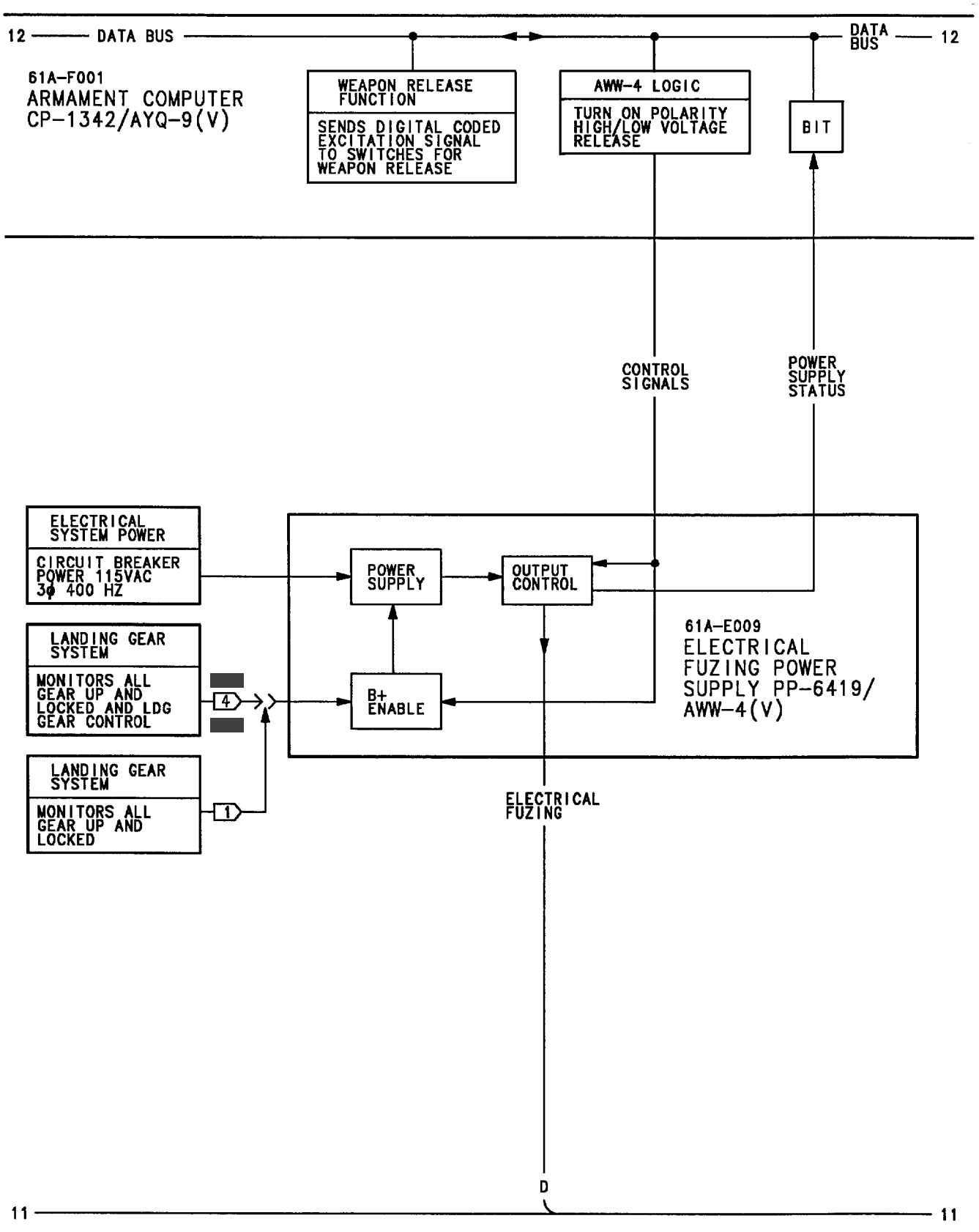


Figure 2. Stores Management System Simplified Schematic (Sheet 2)



00900203

Figure 2. Stores Management System Simplified Schematic (Sheet 3)

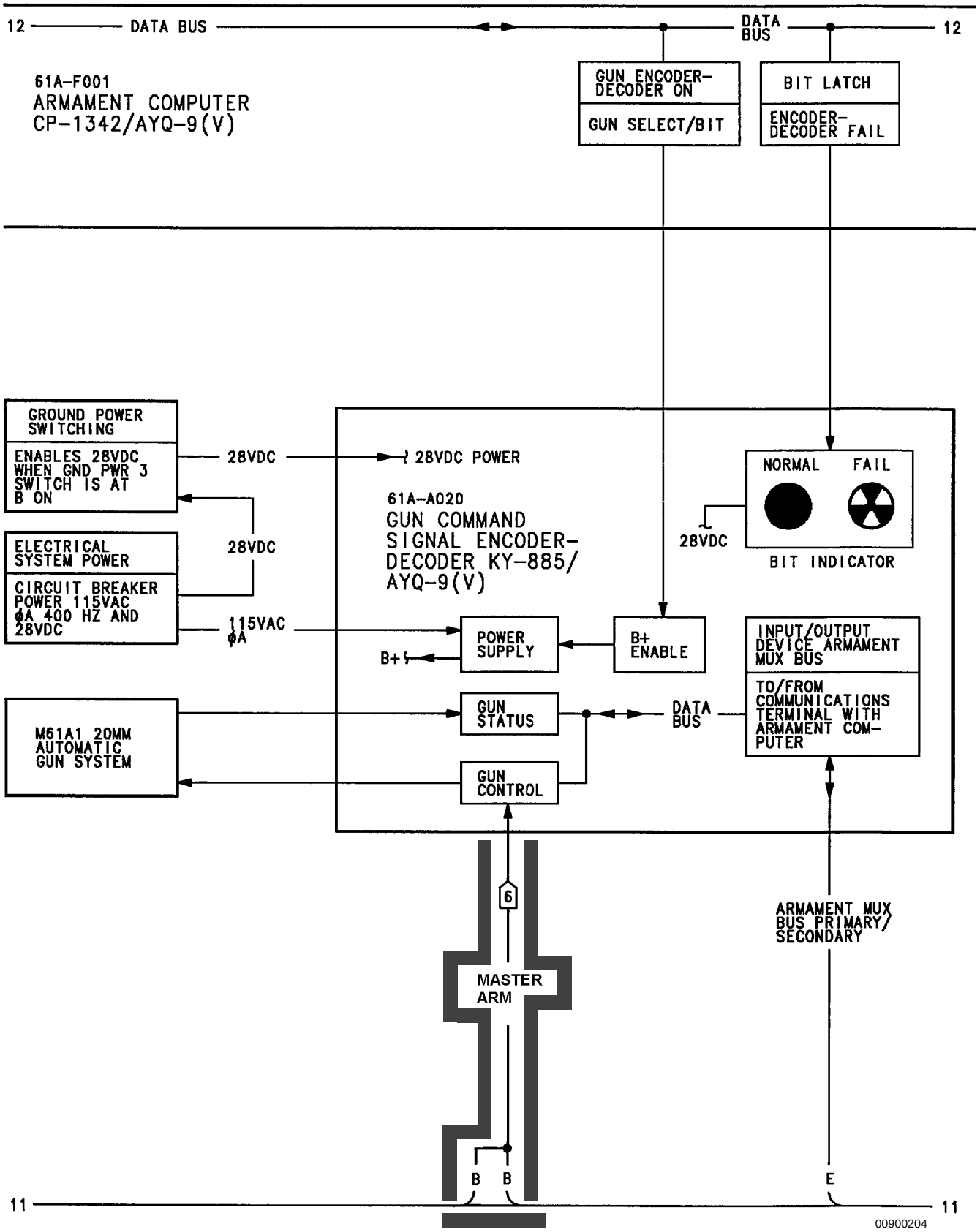
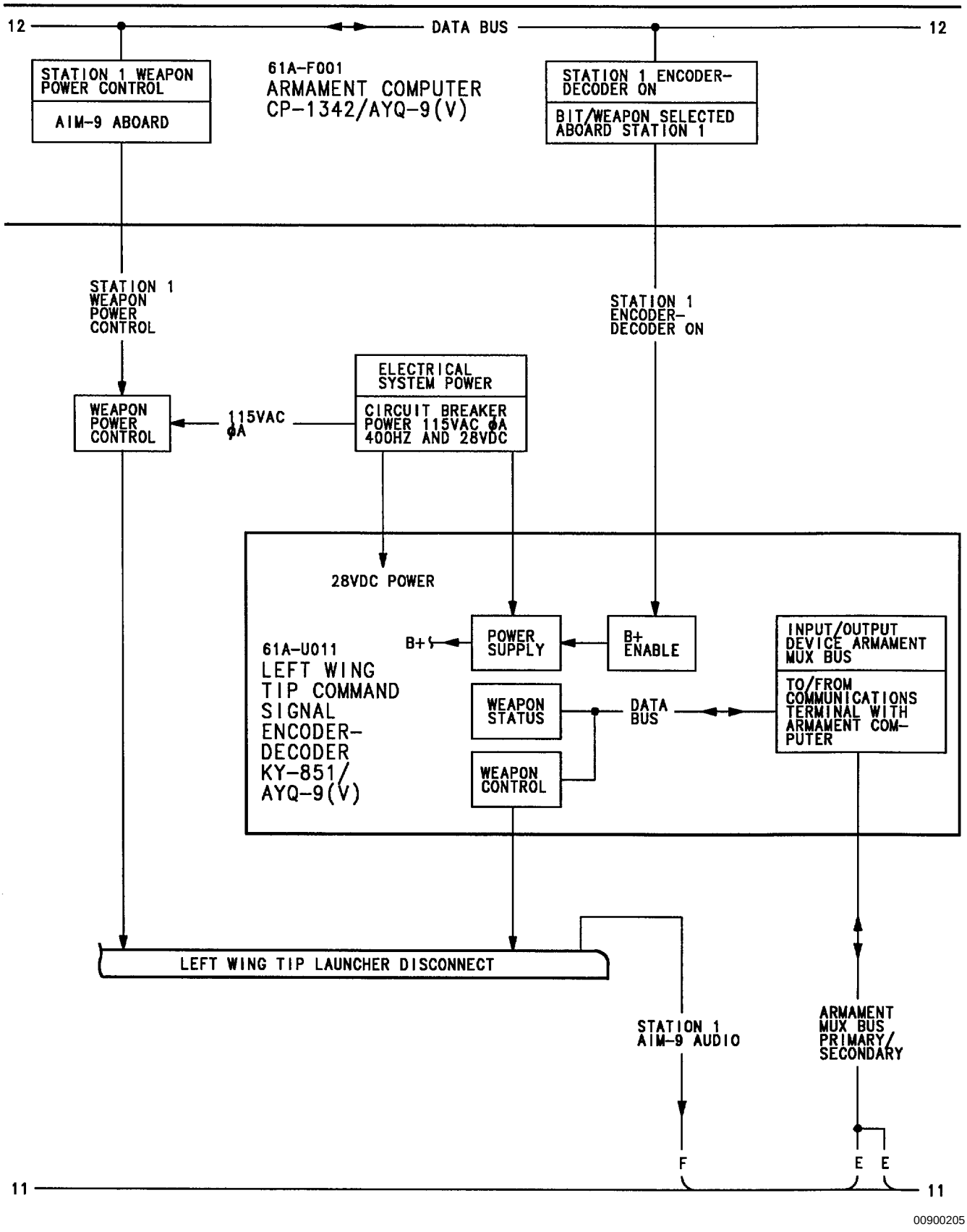
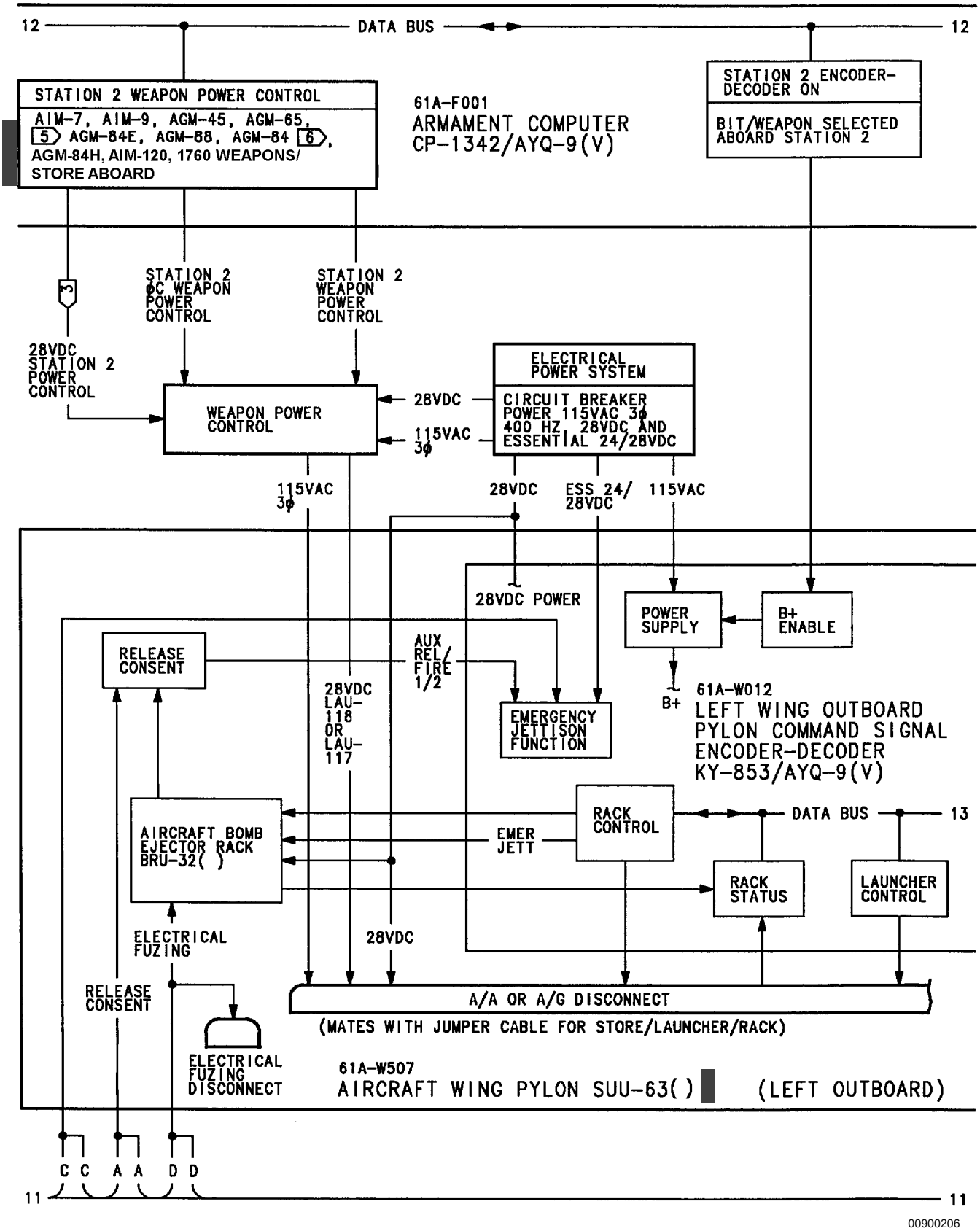


Figure 2. Stores Management System Simplified Schematic (Sheet 4)



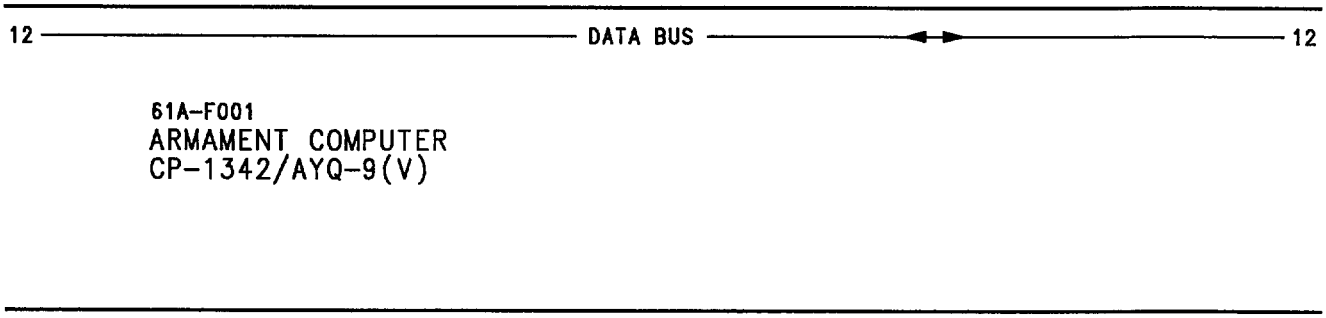
00900205

Figure 2. Stores Management System Simplified Schematic (Sheet 5)



00900206

Figure 2. Stores Management System Simplified Schematic (Sheet 6)



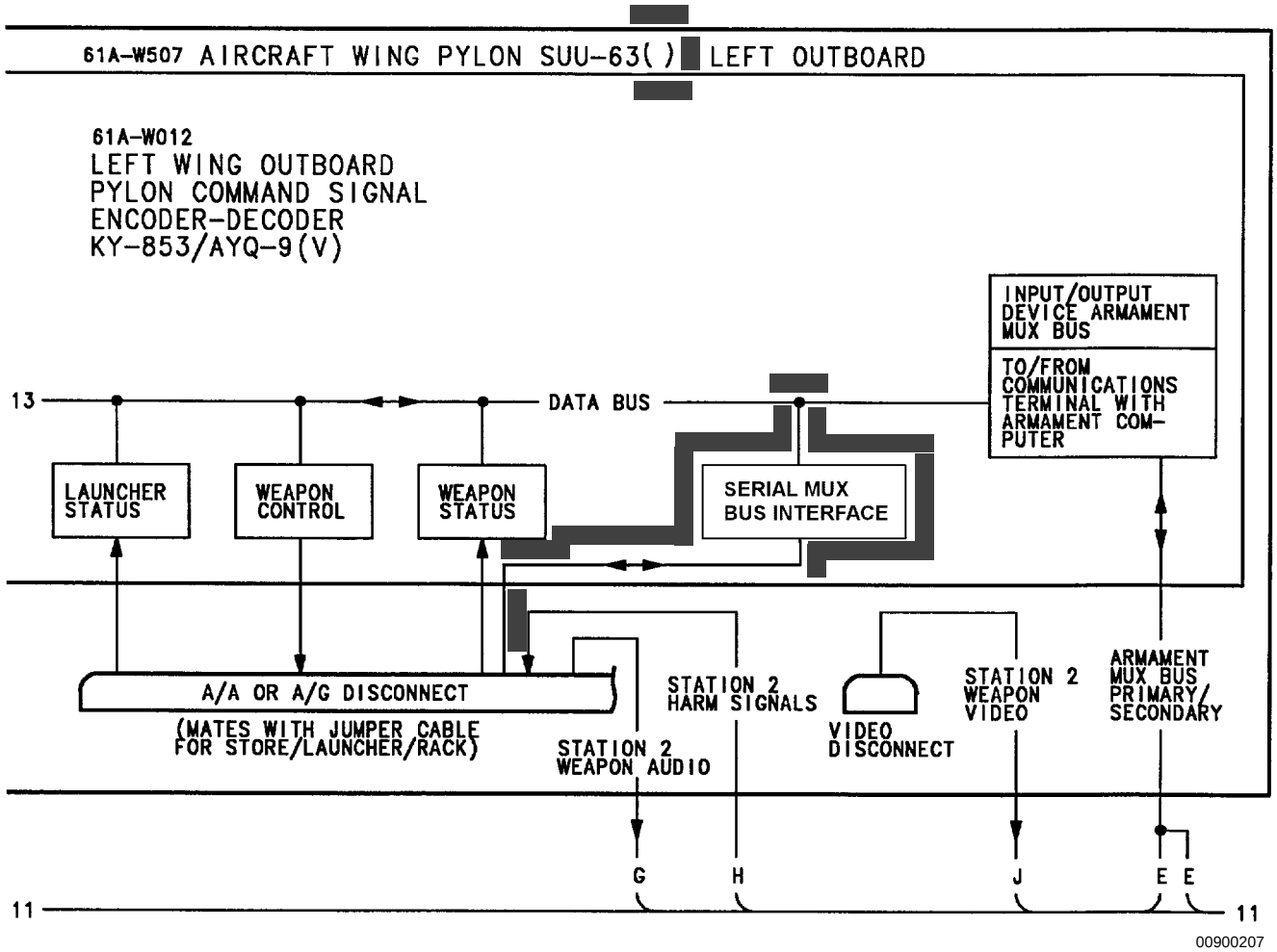


Figure 2. Stores Management System Simplified Schematic (Sheet 7)

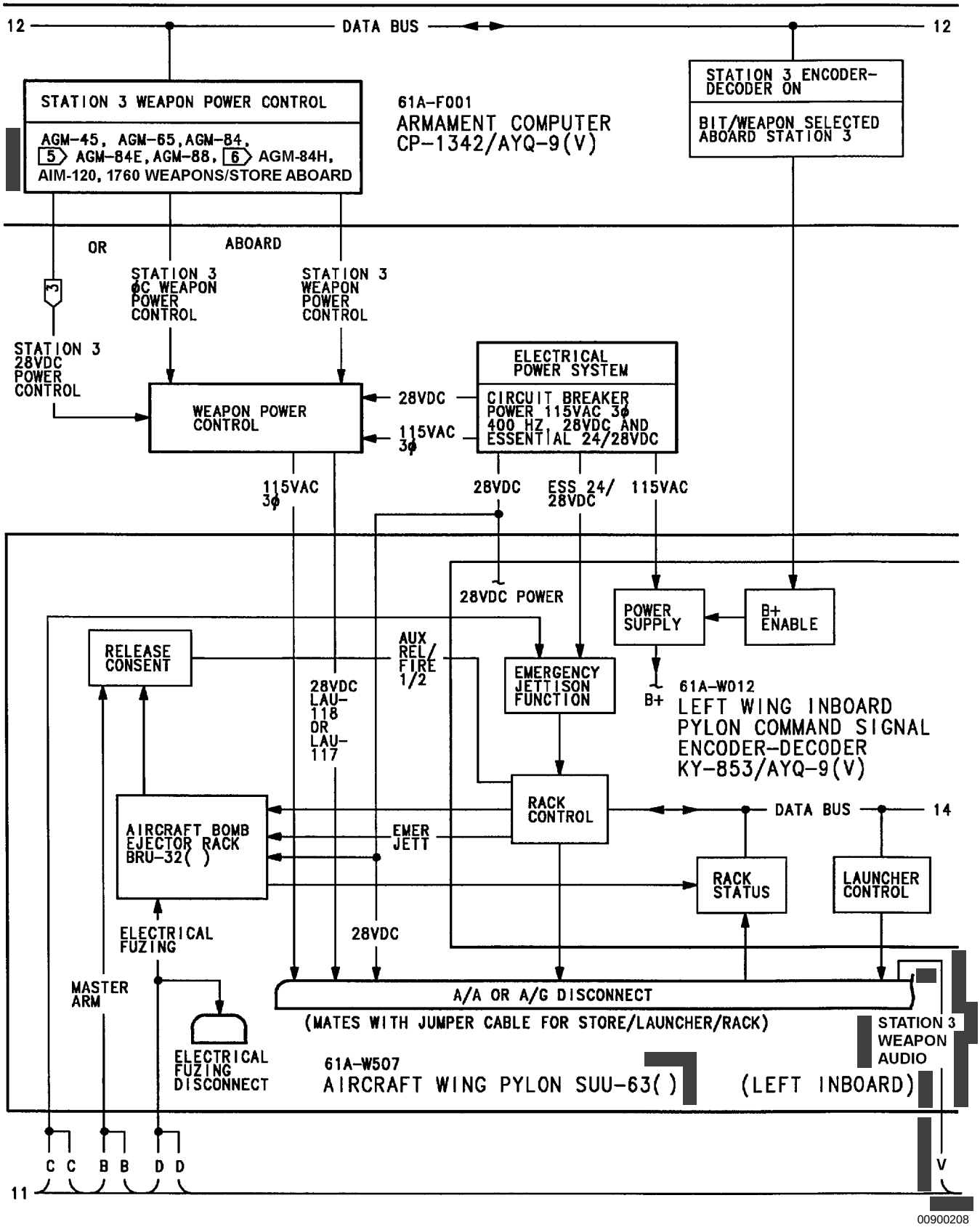


Figure 2. Stores Management System Simplified Schematic (Sheet 8)

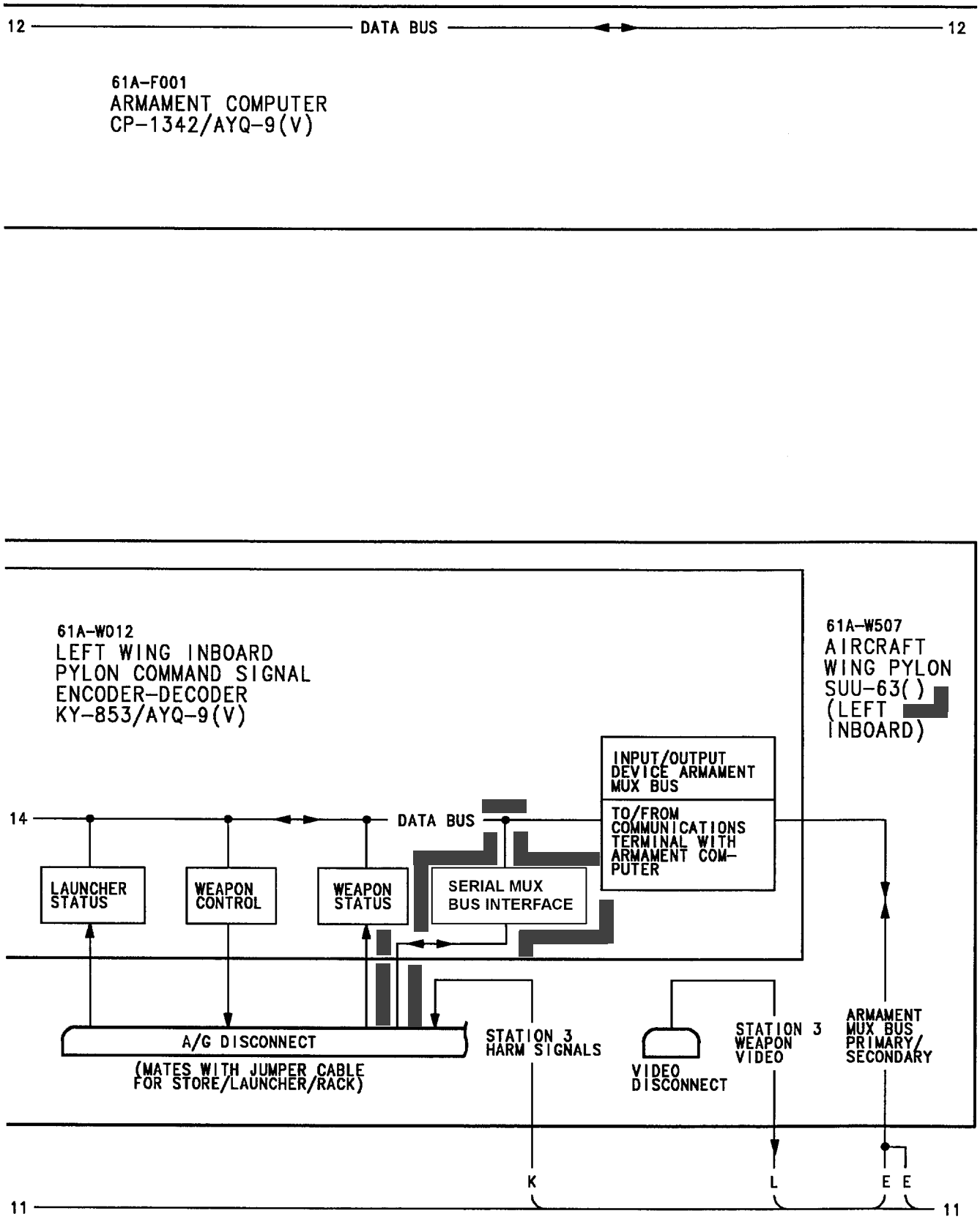


Figure 2. Stores Management System Simplified Schematic (Sheet 9)

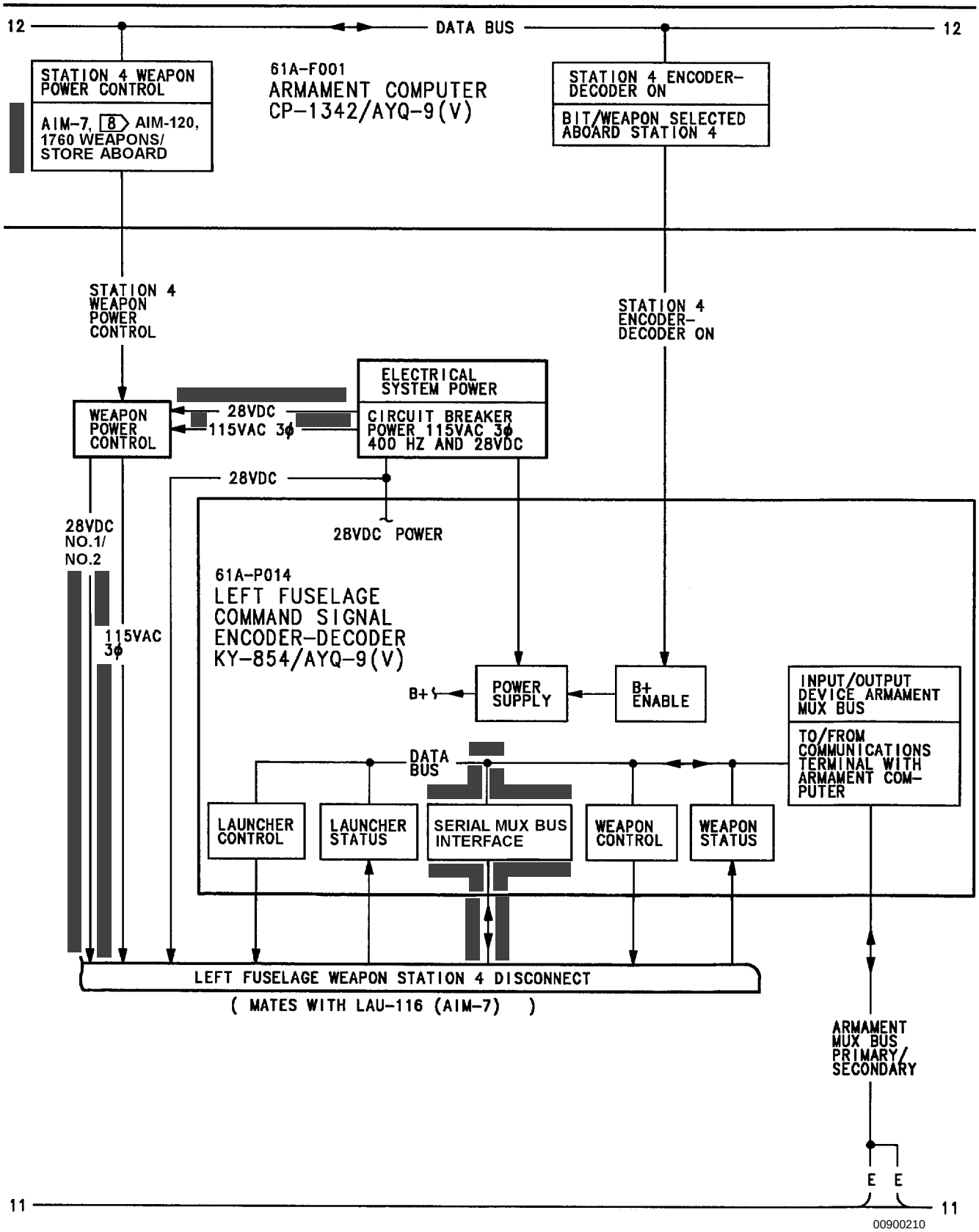


Figure 2. Stores Management System Simplified Schematic (Sheet 10)

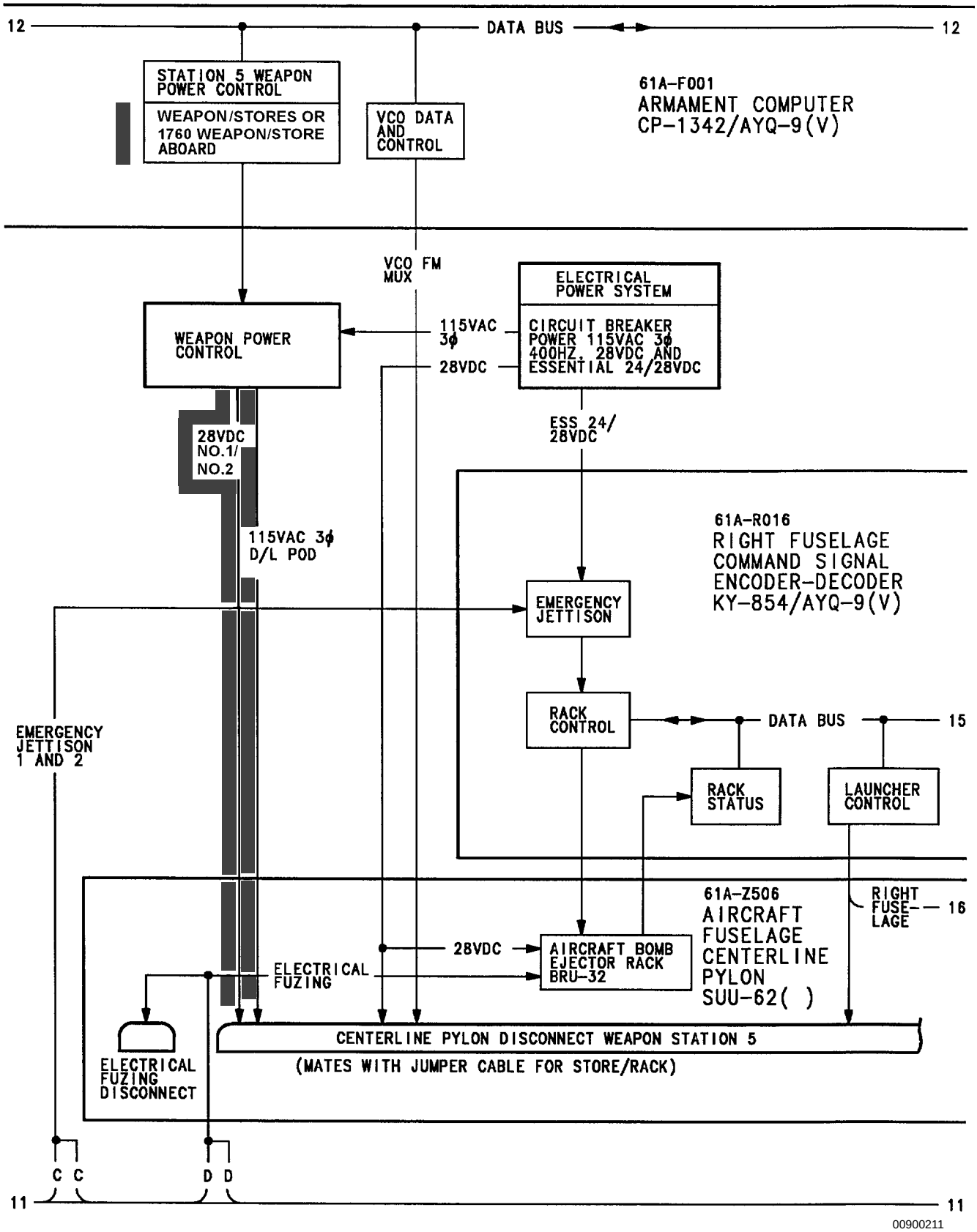
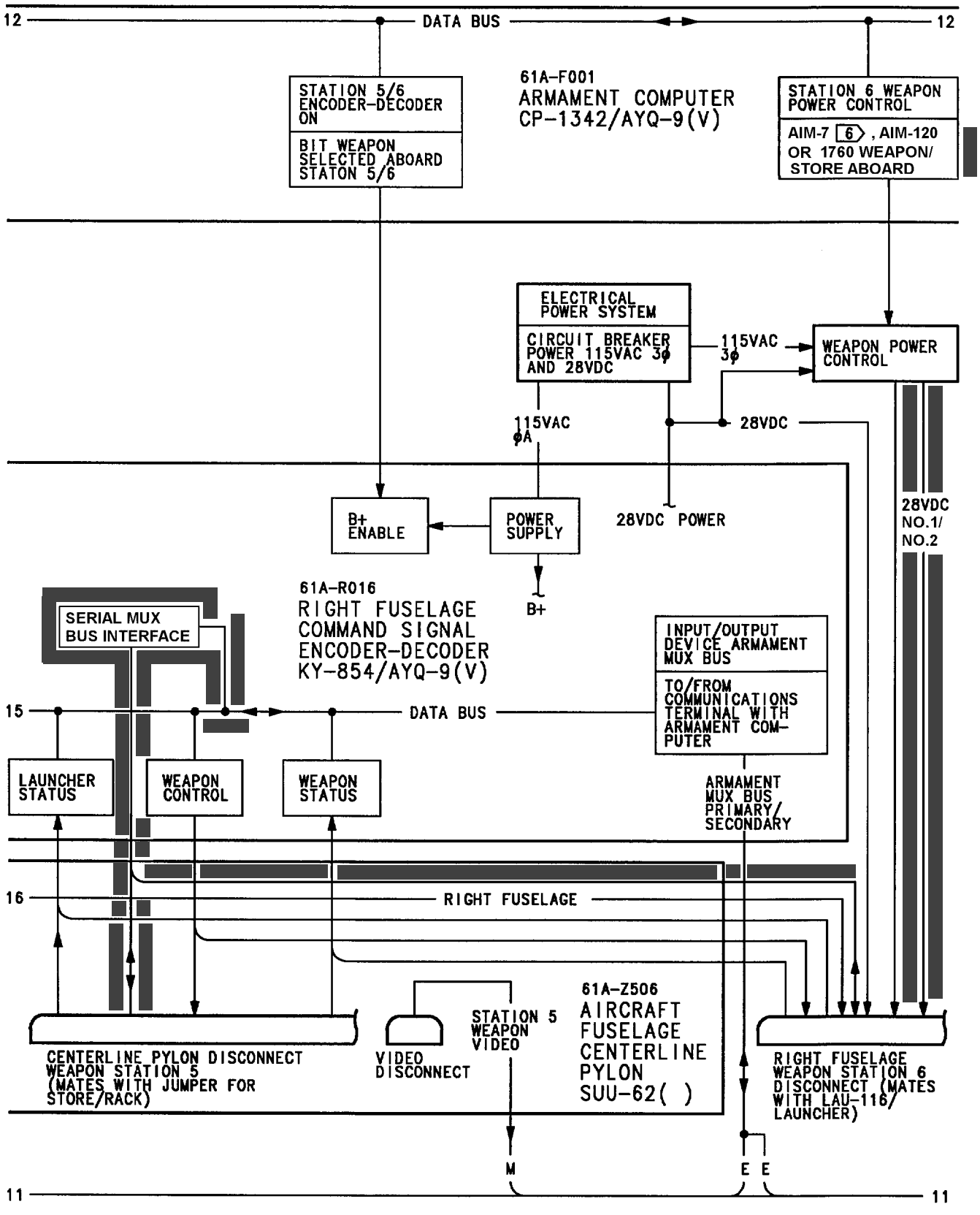
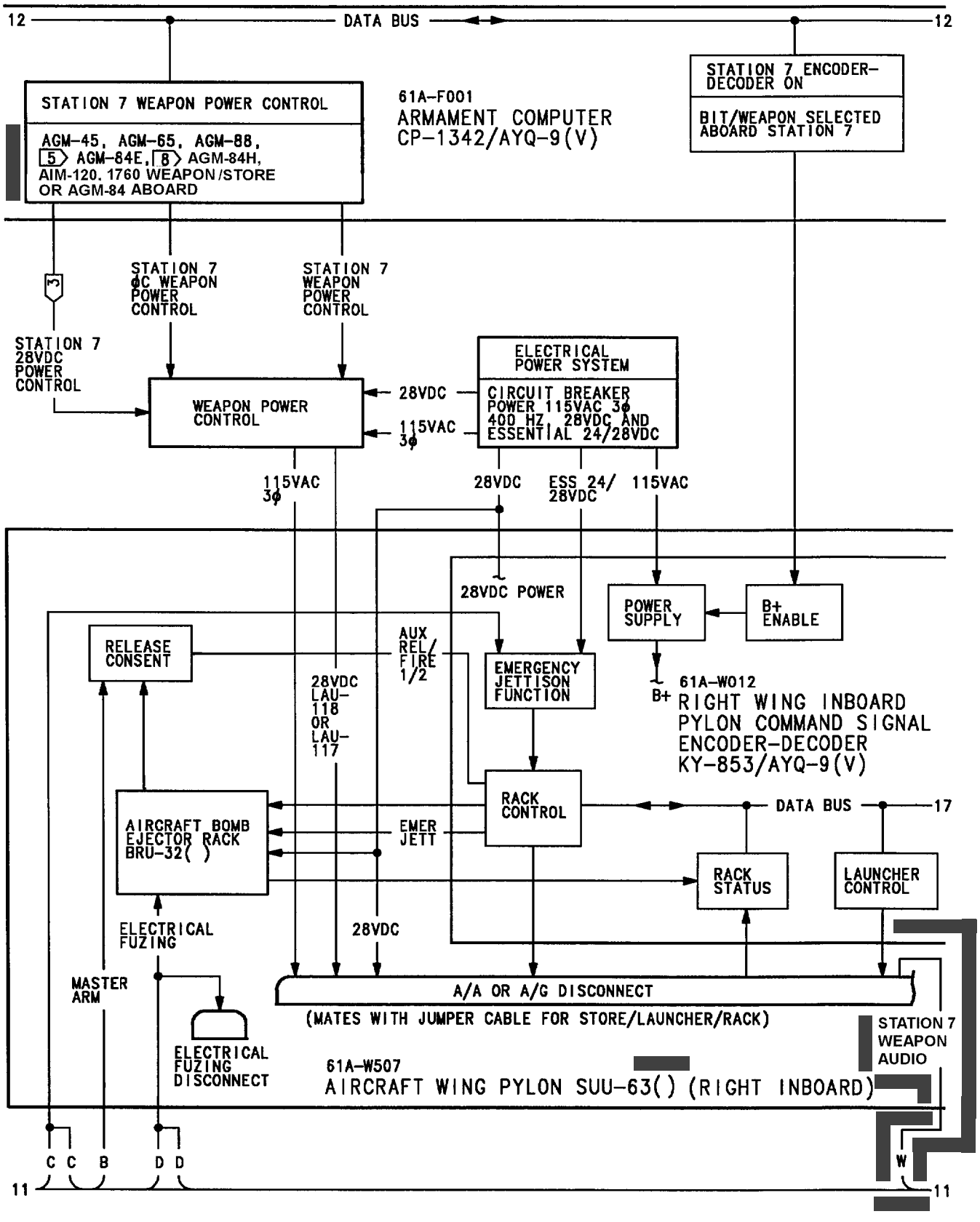


Figure 2. Stores Management System Simplified Schematic (Sheet 11)



00900212

Figure 2. Stores Management System Simplified Schematic (Sheet 12)



00900213

Figure 2. Stores Management System Simplified Schematic (Sheet 13)

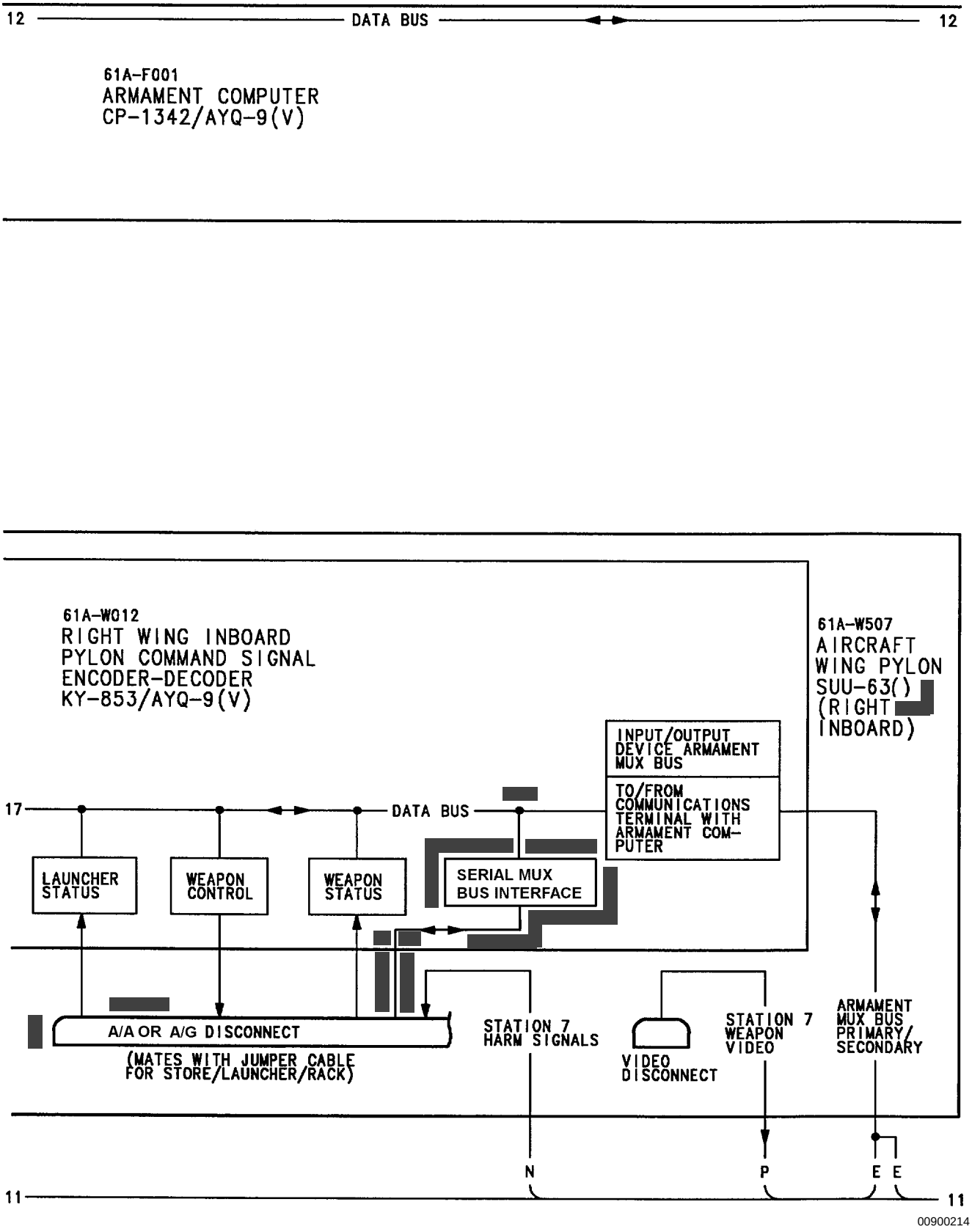


Figure 2. Stores Management System Simplified Schematic (Sheet 14)

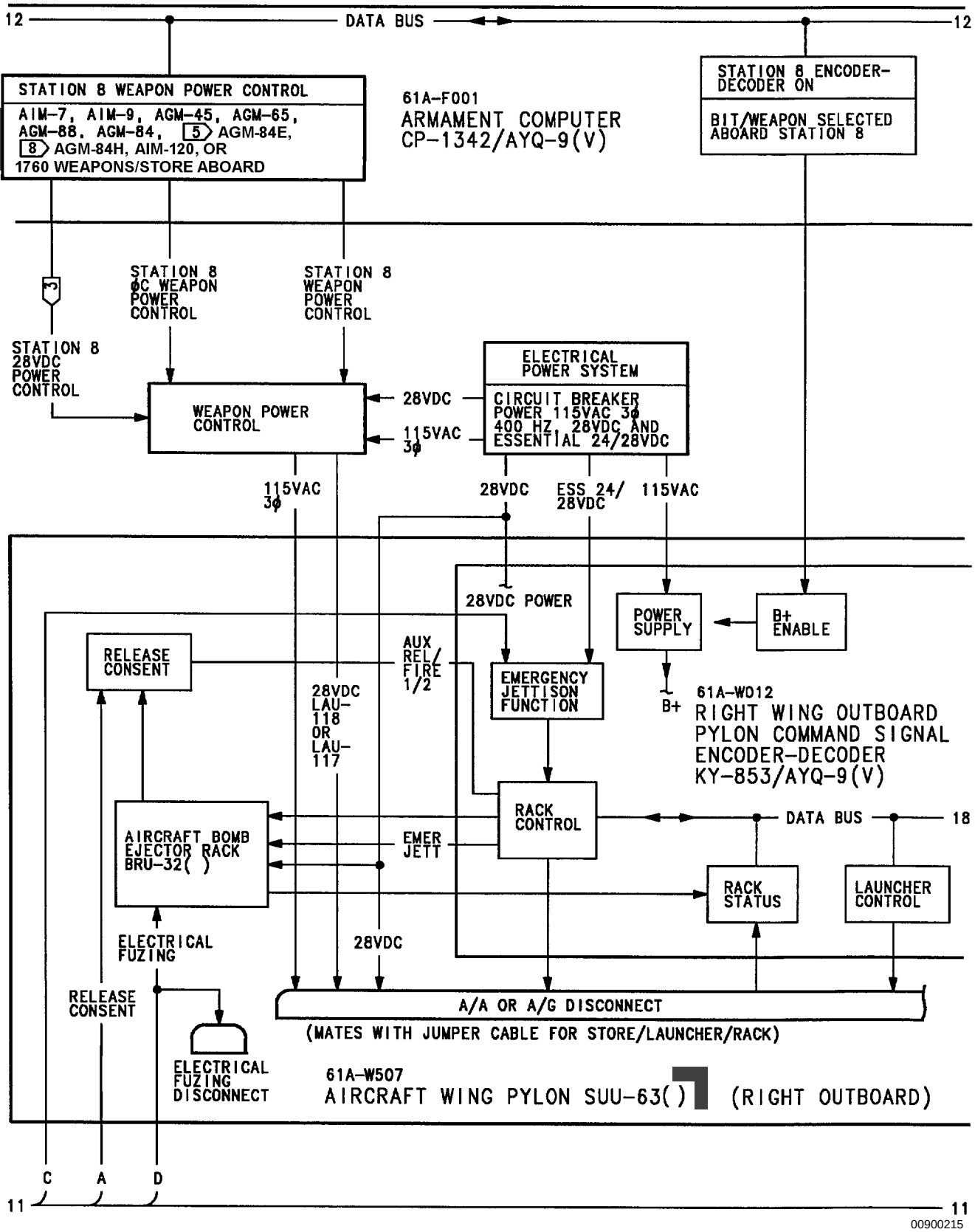
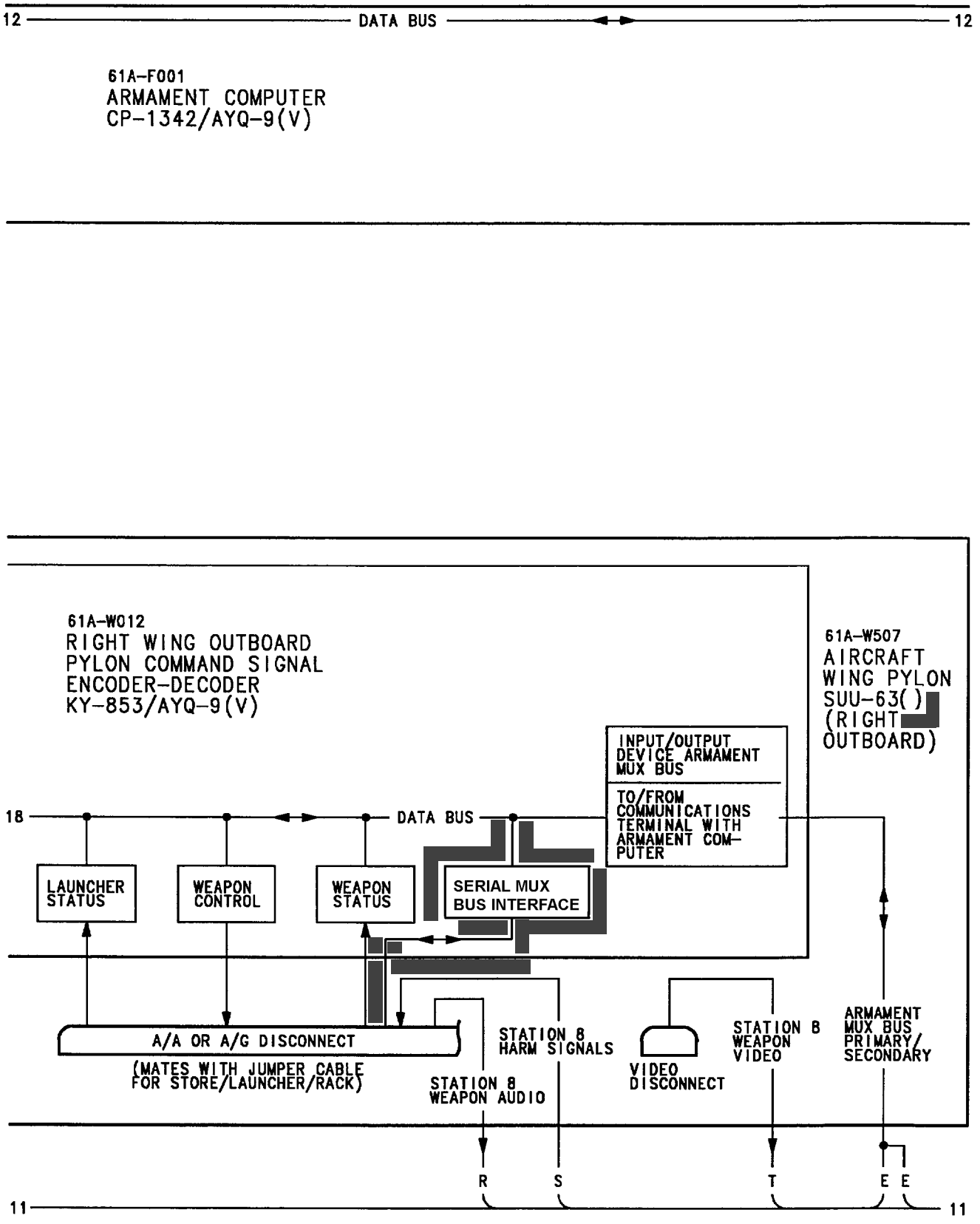


Figure 2. Stores Management System Simplified Schematic (Sheet 15)



00900216

Figure 2. Stores Management System Simplified Schematic (Sheet 16)

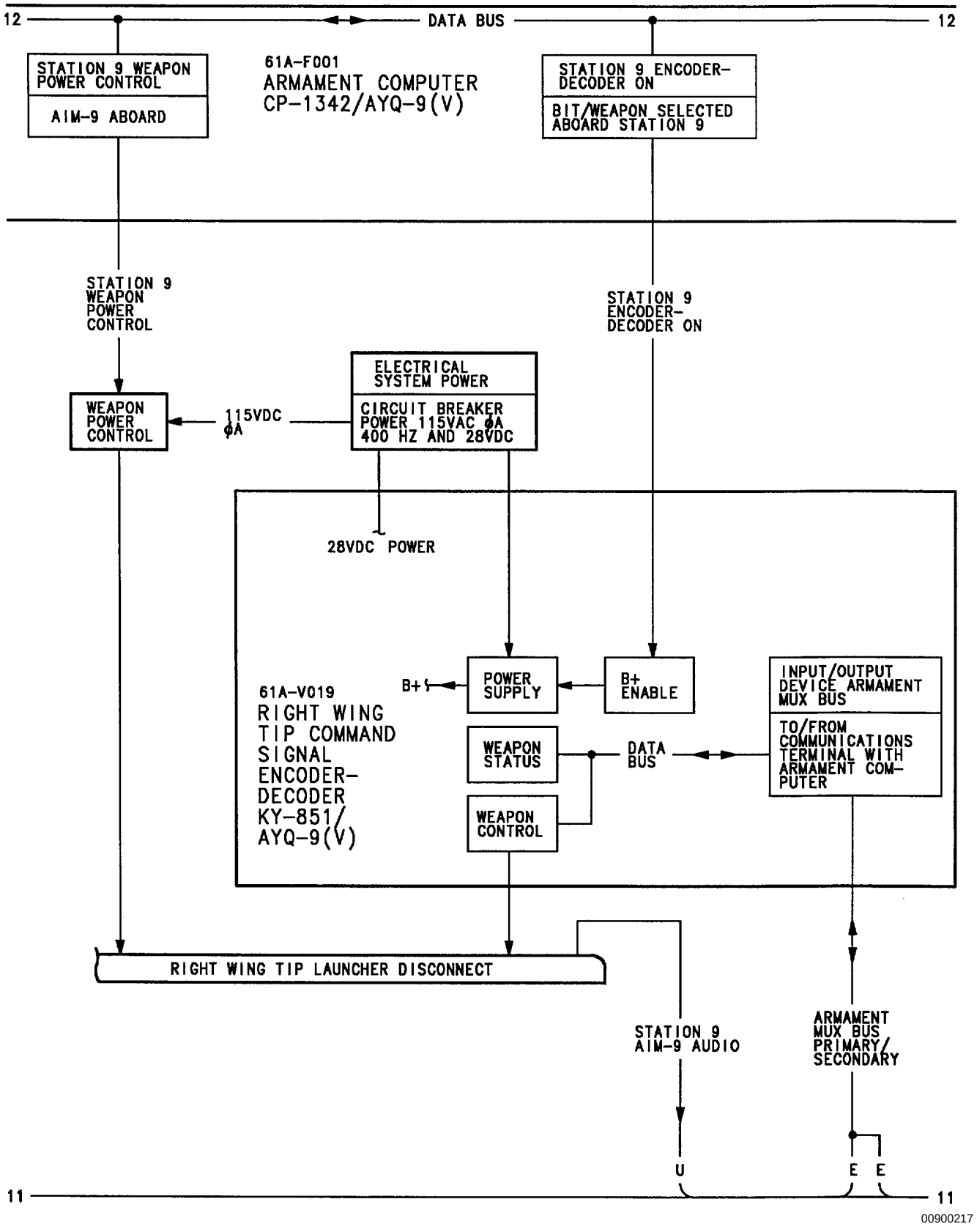


Figure 2. Stores Management System Simplified Schematic (Sheet 17)

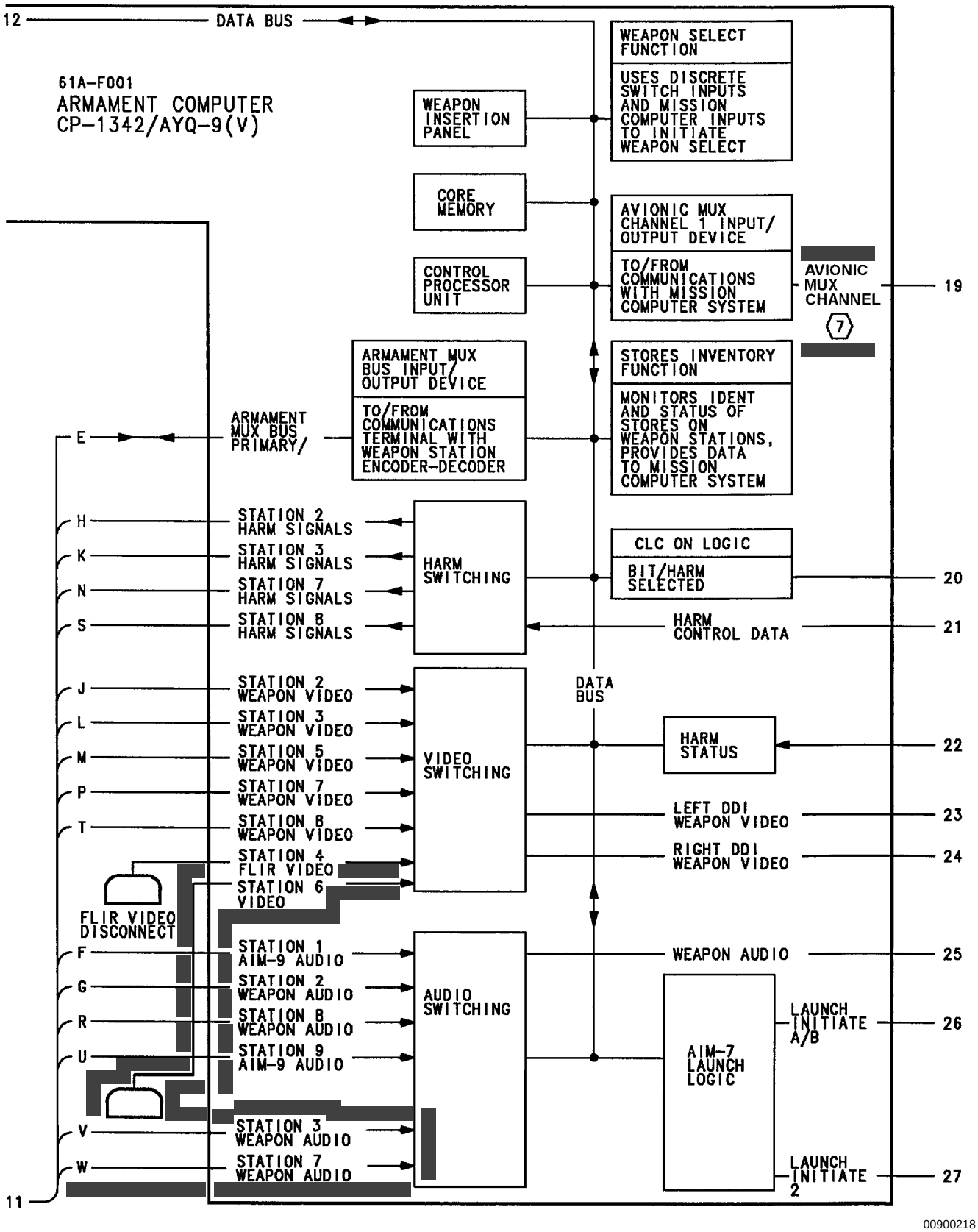


Figure 2. Stores Management System Simplified Schematic (Sheet 18)

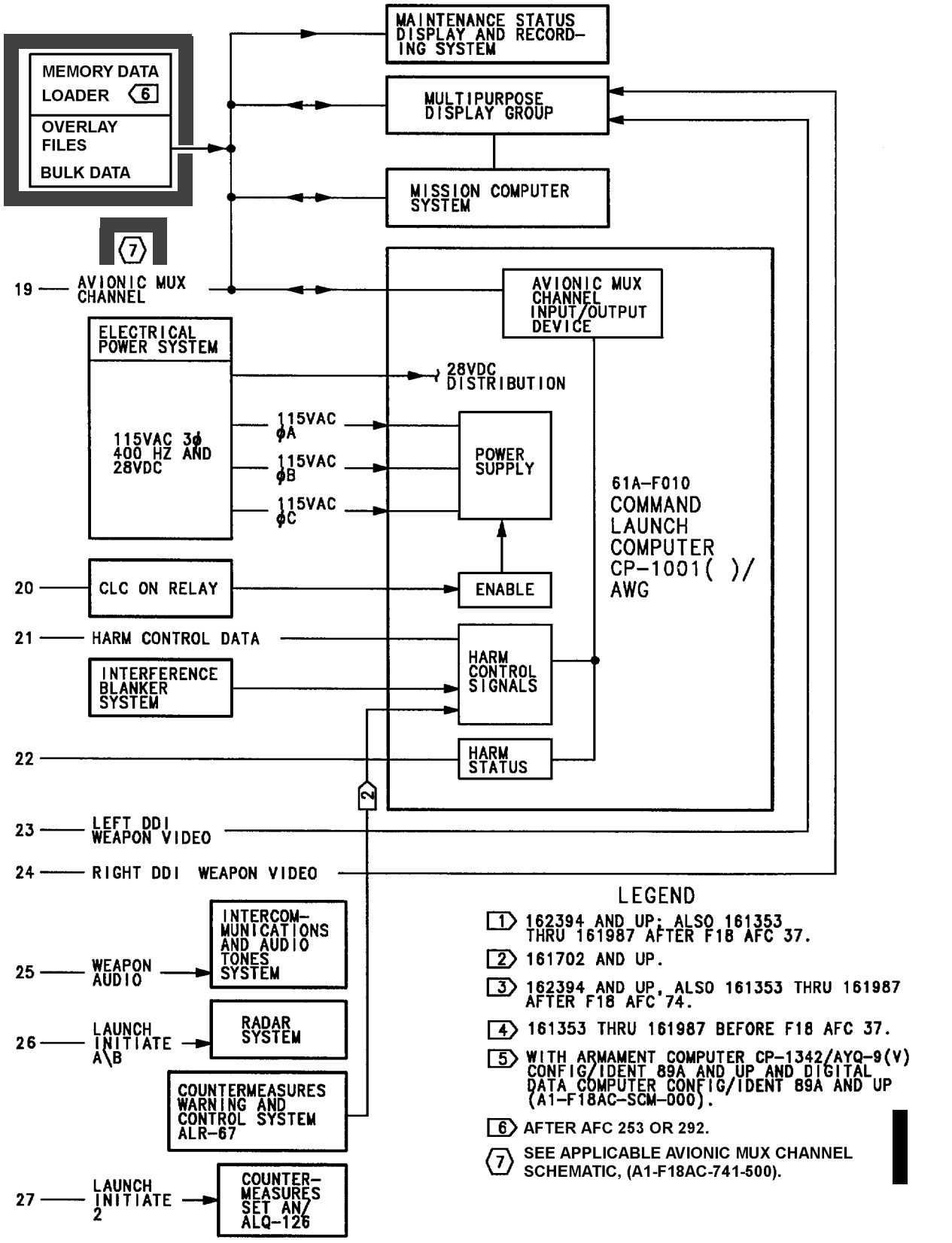


Figure 2. Stores Management System Simplified Schematic (Sheet 19)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

DESCRIPTION - RELATED SYSTEMS

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Related Systems Simplified Schematic WP011 00
Stores Management Locator WP014 00
Weapon Control Systems A1-F18AC-740-500
Armament Computer Input/Output Interface Schematic WP011 00

Alphabetical Index

Subject	Page No.
Air Data Computer System	4
Electrical System	5
Electronic Flight Control System	4
Global Positioning System (AFTER F/A-18 AFC 231)	4
Gun System	5
Inertial Navigation System	4
Intercommunications and Audio Tone System	4
Introduction	2
Maintenance Status Display and Recording System	4
Mission Computer System	2
Multipurpose Display Group	3
Optional Stores	10
Radar System	3
Related Systems Description	2
Suspension And Release Mechanisms	5
Tactical Electronic Warfare Systems	4
Video Recording System	5
Weapons	7

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	-	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	-	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-
F/A-18 AFC 231	-	Embedded Global Positioning System (GPS)/ Inertial Navigation System (INS) (EGI), Incorporation of (ECP MDA-F/A-18 0521)	1 Jun 02	-

1. INTRODUCTION.

2. Stores management system (SMS) related systems operation is provided in this WP. Additional SMS operation WP are listed in WP007 00.

3. Refer to WP011 00 for a simplified schematic of related systems. For detailed schematic of related systems, refer to A1-F18AC-740-500 WP011 00, Armament Computer Input/Output Interface Schematic.

4. Refer to WP014 00 for component locator.

5. RELATED SYSTEMS DESCRIPTION.

6. The SMS is integrated with aircraft systems that require stores/weapons status and provide input data to the SMS for control of the stores/weapons. Related systems are listed below:

a. Mission Computer System

b. Multipurpose Display Group

c. Radar System

d. Maintenance Status Display and Recording System

e. Inertial Navigation System

f. Air Data Computer System

g. Intercommunications and Audio Tone System

h. Electronic Flight Control System

i. Tactical Electronic Warfare Systems

j. Video Recording System

k. Electrical System

l. Gun System

m. suspension and release mechanisms

n. weapons

o. optional stores

p. Mission Data Loader

7. **MISSION COMPUTER SYSTEM.** The mission computer (MC) system provides primary interface between aircraft systems and the SMS. The MC system components that provide inputs/outputs to the SMS are listed below:

a. Digital Data Computer No. 1

b. Digital Data Computer No. 2

c. Electronic Equipment Control C-10380/ASQ (equipment control)

d. Control-Converter C-10382/A

8. The Avionic mux bus provides the primary interface between the MC system and the SMS. The Avionic mux bus is a two terminal multiplex data bus that enables to/from communications between the MC system and those aircraft systems with components connected to the mux channel. Armament Computer CP-1342/AYQ-9(V) and Command Launch Computer CP-1001( )/AWG use the avionic mux bus.

9. The MC system receives BIT data from the SMS to indicate SMS readiness and operational status.

After the first 20 seconds of power on BIT, the MC system establishes communication with the armament computer. After approximately 180 seconds of power on BIT, the armament computer can process commands and send initialization BIT data to the MC system. The MC interrogates the command launch computer without regard for the state of its equipment ready signal. After interrogation is successful, the MC uses all data received, including BIT data.

10. On 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292, the MC system receives BIT fail status for components of the SMS and high speed anti-radiation missiles (HARM) on weapon stations. The MC system sends this BIT data to the maintenance status display and recording system and displays BIT data for multi-purpose display group.

11. AFTER AFC 253 OR 292, the MC system receives BIT fail status for components of the SMS, High Speed Anti-Radiation Missiles (HARM), Advanced Medium Range Air to Air Missiles (AMRAAM), Stand Off Land Attack Missile Expanded Response (SLAM ER), Joint Stand Off Weapon (JSOW), and Joint Direct Attack Munition (JDAM) on the weapon stations. The MC system displays BIT data for multi-purpose display group.

12. SMS store displays are controlled by the MC system. Weapon data from the SMS is sent by the MC system for display by the multipurpose display group. SMS displays are listed below:

a. BIT status messages

b. stores inventory

c. stores status

d. weapon select

e. A/G weapon programs

f. SAFE/ARM status

13. System inputs from aircraft systems not directly interfaced with the SMS are received by the MC system. These signals are conditioned within the MC system and sent to the SMS as prelaunch and release data for the selected weapon.

14. The equipment control is used to select memory inspect data or A/G release programs. Switch select data is sent to the control converter. Equipment control inputs to the control converter are sent to the MC system on the avionic mux bus for display and processing.

15. **MULTIPURPOSE DISPLAY GROUP.** SMS displays are located on the left Digital Display Indicator IP-1317( ) (LDDI) or right Digital Display Indicator IP-1317( ) (RDDI). On F/A-18B, the rear left Digital Display Indicator IP-1318( ) displays the same data as LDDI, when turned on. Rear right Digital Display Indicator IP-1318( ) displays the same data as RDDI, when turned on.

16. The MC system controls the SMS displays on LDDI or RDDI. LDDI interfaces the MC system by way of the avionic mux bus. RDDI interfaces the MC system by way of the avionic mux bus. The Head-Up Display Unit AN/AVQ-28 (HUD) display is commanded by the MC system and controlled by LDDI or RDDI.

17. The Armament Computer CP-1342/AYQ-9(V) sends weapon video directly to LDDI or RDDI when selected for display. Weapon video is displayed for weapons/stores listed below:

a. AGM-65 Maverick (weapon stations 2, 3, 7 and 8)

b. Forward Looking Infrared System (FLIR) (weapon station 4)

c. Navigation Infrared Receiving Set AN/AAR-50 (NFLIR pod) (weapon station 6) (AFTER AFC 253 OR 292)

d. Guided Weapon Control-Monitor Set AN/AWW-13 (Advanced data link pod) (weapon stations 2, 3, 5, 7 and 8) (AFTER AFC 253 OR 292)

e. Stand Off Land Attack Missile (SLAM) AGM-84E (weapon stations 2, 3, 7 and 8) (AFTER AFC 253 OR 292)

18. In addition to SMS displays, the DDI's are used to select A/G weapons, weapon program options, and delivery modes. Select functions are done by pressing pushbutton switches on the edge of the display area. Display options relative to the selected display are printed next to the pushbutton in the form of acronyms.

19. The HUD displays SMS data related to weapon release. Weapon release functions displayed are listed below:

a. minimum/maximum weapon release limits

b. aircraft steering for weapon release

c. selected weapon/weapon count

d. safe/arm status

e. shoot range

20. **RADAR SYSTEM.** The SMS requires input data from the radar system relative to radar target tracking, radar mode selected, and operational status. The radar system interfaces with the MC system by way of the avionic mux bus. Data from the radar system is processed by the MC system and sent to the SMS as prelaunch data on the avionic mux bus.

21. Radar data is also used by the MC system to display aircraft steering and in range functions for weapon release.

22. Two discrete signal functions interface the radar system and SMS. When the RADAR switch on SNSR pod control box panel assembly is set to any position other than OFF, 28vdc radar on is sent to the armament computer to enable initialization of the AIM-7 sparrow. At AIM-7 launch, the SMS sends AIM-7

launch initiate A and B to the radar system. The radar selects pulse doppler illuminate (PDI) mode when launch initiate A and B signals exist for AIM-7 tracking after aircraft separation.

23. **MAINTENANCE STATUS DISPLAY AND RECORDING SYSTEM.** The maintenance status display and recording system (MSDRS) displays maintenance codes for the SMS. Maintenance codes are three digit numbers which can be displayed on the nose wheelwell DDI.

24. BIT circuits in the armament computer and command launch computer detect failed components or a failed HARM. When a failure is detected, information is sent to the MC system on the avionic mux bus. The MC system sends this data by way of the avionic mux bus to the MSDRS for display on the nose wheelwell DDI.

25. In addition to component maintenance codes, the MC system can determine avionic mux bus terminal fails in the armament computer and command launch computer. Fail indications will also be displayed on the nose wheelwell DDI.

26. **INERTIAL NAVIGATION SYSTEM.** The MC system uses INS data relative to aircraft motion, acceleration and attitude, and provides acceleration, velocity, present position, pitch, roll, and true heading. General navigation such as target range and bearing, aircraft ground speed, ground track, heading and update computations are done by the MC system.

26A. **GLOBAL POSITIONING SYSTEM (AFTER F/A-18 AFC 231)**. The INS also includes the Global Positioning System (GPS) as a source of data provided to the MC system.

27. **AIR DATA COMPUTER SYSTEM.** The SMS uses air data computer system outputs for prelaunch data for weapons. Air data computer system outputs are sent to the MC system on the avionic mux bus. The MC system processes the air data computer data and sends the data applicable to the selected weapon to the SMS on the avionic mux bus.

28. The SMS uses air data computer system data listed below:

a. true airspeed

b. altitude

c. air density

d. ambient temperature

e. magnetic heading

29. **INTERCOMMUNICATIONS AND AUDIO TONE SYSTEM.** When AIM-9 sidewinder or AGM-45 shrike is selected, the SMS sends AIM-9 audio or AGM-45 weapon audio for the selected weapon station to Intercommunication Amplifier-Control AM-6979/( ) or AM-7360/A or, after AFC 253 or 292, AM-7539/A. AIM-9 audio or AGM-45 weapon audio is then summed with other audio tones and sent to the pilot's headset and on F/A-18B, the instructor's headset in rear cockpit.

30. Separate volume controls are used to control the AIM-9 audio and AGM-45 weapon audio. The WPN VOL on intercommunications amplifier-control can be adjusted for the pilot's headset. The WPN VOL control on volume control panel assembly on F/A-18B, can be adjusted for the instructor's headset.

31. **ELECTRONIC FLIGHT CONTROL SYSTEM.** The SMS sends roll rate limit signals to the electronic flight control system when tanks or A/G weapons are loaded on the aircraft wing pylon stations.

32. Interface between the SMS and electronic flight control system is on the avionic mux bus by way of the MC system. The SMS sends roll rate limit signals to the MC system. The MC system processes the signals and sends them to the electronic flight control system. When the electronic flight control system receives roll rate limit command, aircraft roll rate is limited to 2/3 of the normal command rate.

33. **TACTICAL ELECTRONIC WARFARE SYSTEMS.** The SMS and tactical electronic warfare systems are interfaced to prevent interference between weapons and electrical countermeasure functions. Tactical electronic warfare systems are listed below:

a. Chaff Dispenser Set

b. Countermeasures Set AN/ALQ-126

c. Interference Blanker

d. Countermeasures Warning and Control System (ALR-67)

34. **Chaff Dispenser Set.** The MASTER switch on master arm control panel assembly must be set to ARM to activate the electrical switching unit that fires the dispenser cartridges. When ARM is selected, 28vdc is applied to ALE-39 sequence power relay. Ground for the relay coil is controlled by the DISPENSER switch on ECM control panel assembly.

35. When the ALE-39 sequence power relay energizes, 28vdc is applied to the left and right electrical switch-

ing units. With 28vdc applied to the electrical switching units, the cartridge fire function is enabled.

36. **Countermeasures Set AN/ALQ-126.** During AIM-7 launch, AIM-7 uses the radar PDI signal to lockon and track the illuminated target. WITH RECEIVER-TRANSMITTER RT-1079A/ALQ-126, the SMS sends an AIM-7 Launch Initiate 2 signal to disable the transmitter to prevent interference with AIM-7 operation.

37. WITH RECEIVER-TRANSMITTER RT-1079B/ALQ-126, an ECM Inhibit signal inhibits the transmitter from being disabled. The SMS sends a Missile Launch signal to Countermeasures Computer CP-1293/ALR-67(V) which changes the frequency of the transmitter to prevent interference with AIM-7 operation.

38. **Interference Blanker.** Low, medium and high band blanking pulses are applied to the Command Launch Computer CP-1001( )/AWG. The command launch computer uses the inputs to verify on status of the transmitter of avionic systems on the aircraft. When blanking exists, the command launch computer uses on status to reduce interference of the high speed anti-radiation missiles (HARM) loaded on the aircraft wing pylon weapon stations.

39. **ALR-67.** The ALR-67 provides detection of threat radar signals. The system will detect multiple threats and provide relative bearing to each threat. Relative bearing is provided to the Command Launch Computer CP-1001( )/AWG for AGM-88 HARM launch logic. ALR-67 threat data is also provided to mission computer system for display of AGM-45 shrike compatible threat symbology on the HUD.

40. **VIDEO RECORDING SYSTEM.** The video recording system (VRS) provides a video and audio recording on magnetic tape for viewing after flight. Weapon video is provided by the SMS and radar video is provided by the radar system. The audio to the headsets is recorded on the tape. The A/G weapon release switch or gun/A/A missile trigger switch selects HUD video and turns event markers on for the VRS.

41. **ELECTRICAL SYSTEM.** The electrical power system provides power to the SMS components, bomb racks, launchers, and weapon power control circuits for weapons which require aircraft power before launch.

42. Power for the SMS, weapon release mechanisms, and weapon power are divided between the left and right aircraft busses. Weapon stations 1 thru 4 and Electrical Fuzing Power Supply PP-6419/AWW-4 are powered from the left bus. Weapon stations 5 thru 9, Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V), Armament Computer CP-1342/AYQ-9(V), and Command Launch Computer CP-1001/AWG are powered from the right bus.

43. Essential 24/28vdc powers the emergency jettison circuits in the armament computer and five command signal encoder-decoders for the five pylon stations. When a generator is operating or during ground power operation, 28vdc will power the emergency jettison circuits. When ground power or generators are not in operation, 24vdc battery power will power the emergency jettison circuits.

44. During ground power application, power to the armament computer is disabled until GND PWR 3 switch on the GND PWR control panel assembly is set to B ON. GND PWR 3 switch also controls application of 115vac phase A to the gun command signal encoder-decoder.

45. **GUN SYSTEM.** The Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V) provides interface for the M61A1 20mm automatic gun system. Interface is made up of those signals required to fire the gun and monitor gun status. The hydraulic drive power for the gun and environmental control system purge functions are also controlled by the gun command signal encoder-decoder.

46. The gun command signal encoder-decoder has to/from communications with the Armament Computer CP-1342/AYQ-9(V) by way of the primary/secondary armament mux bus. The armament computer, by way of the avionic mux bus, interfaces with the MC system for gun displays. The armament computer provides gun select and gun fire function by interface with the A/A weapon select switch and gun A/A missile/trigger switch on the aircraft controller grip assembly.

47. **SUSPENSION AND RELEASE MECHANISMS.** The suspension and release mechanisms interface with the SMS, weapons and stores. Suspension and release mechanisms are listed below:

a. pylons

b. launchers

c. racks

48. **Pylons.** Weapon station 2, 3, 5, 7, and 8 are pylon weapon stations. Pylons are installed as required

for the aircraft mission. Each pylon has a parent rack, Aircraft Bomb Ejector Rack BRU-32( ) that is part of the pylon. Stores, weapons or launchers/racks attach to the BRU-32. The SMS emergency jettison and auxiliary release function are applicable only to the store loaded on BRU-32.

49. Aircraft Wing Pylon SUU-63( ). The SUU-63 is installed on weapon stations 2, 3, 7 and 8. Electrical interface with the aircraft is provided by the SUU-63 pylon disconnect. The pylon disconnect mates with an aircraft pylon receptacle when the pylon is installed on the weapon station.

50. Each pylon has a command signal encoder-decoder KY-853/AYQ-9(V) and a BRU-32 bomb rack. The command signal encoder-decoder controls the store loaded on the weapon station/BRU-32. Electrical interface for stores loaded on the pylon is provided by the pylon weapon disconnect/stowage receptacle panel.

51. Aircraft wiring, Aircraft Wing Pylons SUU-63( ), and Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) effectivities must be observed to enable additional weapon ability. Aircraft wiring, wing pylons, and encoder-decoders exist for the aircraft effectivities listed below:

a. 161353 THRU 161761 - production baseline

b. 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74 - Harpoon ability

c. 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292 - 1760 stores

52. Aircraft Centerline Fuselage Pylon SUU-62( ). The SUU-62 pylon is installed on weapon station 5. The weapon station and BRU-32 are controlled by the right fuselage command signal encoder-decoder.

53. Electrical interface with the aircraft is provided by centerline disconnect connectors. Door 173 has four stowage receptacles for disconnect connectors when the pylon is not installed. When the pylon is installed, door 173 is removed and the connectors mate with the pylon wiring. A pylon connector always mates with the disconnect for the BRU-32. The other three connectors are for electrical fuzing, weapon video, and jumper cables for the BRU-33, Multiple Ejector Rack (MER), and Aircraft Fuel Tank FPU/6( ) or FPU/8( ) when installed.

54. **Launchers.** Launchers are used to load weapons controlled by the weapon station command signal encoder-decoders. Pylon weapon stations use jumper bundles to interface aircraft or pylon disconnects to launchers.

55. Guided Missile Launcher LAU-7( ). The AIM-9 sidewinder is loaded on the LAU-7. When AIM-9 is loaded on the wing tip stations (1 and 9), the LAU-7 is bolted to the wing tip. When AIM-9 is loaded on the outboard wing pylons (stations 2 and 8), the LAU-7 is loaded on the Aircraft Guided Missile Launcher LAU-115( ). The LAU-115 is loaded on the pylon BRU-32. The LAU-115 can have two LAU-7 installed for dual AIM-9 ability.

56. Aircraft Guided Missile Launcher LAU-115( ). The LAU-115 is installed on outboard wing pylons when AIM-7 Sparrows, AIM-9 Sidewinders or AIM-120 AMRAAM (AFTER AFC 253 OR 292) are loaded. The LAU-115 is installed on the pylon BRU-32. The AIM-7 sparrow is installed on the LAU-115. AIM-9 sidewinder LAU-7 launchers are installed on the LAU-115. Relay switching circuits in the launcher enable the launcher to control the two AIM-9, or AIM-120 (AFTER AFC 253 OR 292).

57. Aircraft Guided Missile Launcher LAU-116( ). The LAU-116 is used to load AIM-7 sparrow and AIM-120 AMRAAM (AFTER AFC 253 OR 292) on the fuselage weapon stations. The LAU-116 bolts to the aircraft.

58. Aircraft Guided Missile Launcher LAU-117( ). The LAU-117 is used to load the AGM-65 maverick on the four wing pylon stations. The LAU-117 is installed on the pylon BRU-32.

59. Aircraft Guided Missile Launcher LAU-118( ). The LAU-118 is used to load the AGM-88 HARM on the four wing pylon stations. The LAU-118 is installed on the pylon BRU-32.

60. Rocket Launchers LAU-10, LAU-61, and LAU-68. The BRU-33 is used to load the rocket launchers on all four wing pylon stations. The BRU-33 is installed on the BRU-32.

61. AFTER AFC 253 OR 292, Aircraft Guided Missile Launcher LAU-127. The LAU-127 is used to load an AIM-120 AMRAAM missile on the two inboard and two outboard wing pylon station or an AIM-9 Sidewinder on the two outboard wing pylon stations. The LAU-115( ) is loaded on the pylon BRU-32. The LAU-115 can have two LAU-127 installed for dual AIM-9 or AIM-120 ability.

62. **Racks.** Racks are used to load weapons and stores on the pylon weapon stations. The racks use jumper cables to interface the pylon disconnects.

63. Aircraft Bomb Ejector Rack BRU-32( ). The BRU-32 is the parent rack for all pylon weapon stations. Weapons and stores that do not require launchers or racks are loaded directly on the BRU-32. Launchers and racks needed for weapon loading on pylon weapon stations are installed on the BRU-32.

64. Aircraft Bomb Ejector Rack BRU-33( ). The BRU-33 is used when loading two bombs or rocket pods on a pylon weapon station. The BRU-33 is installed on the BRU-32.

65. Aircraft Bomb Ejector Rack BRU-41. The BRU-41 is used when loading six practive bombs on the pylon weapon stations. The BRU-41 is installed on the BRU-32.

66. Multiple Ejector Rack (MER). The MER is used when loading six practice bombs on the pylon weapon stations. The MER is installed on the BRU-32.

67. **WEAPONS.** The SMS provides system interface with air to air (A/A) and air to ground (A/G) weapons. See WP007 00, figure 1, for stores configuration.

68. **Air To Air Weapons.** A/A missiles can be installed on the two wing tip stations, two fuselage stations, and two outboard wing pylon stations. A/A weapons are listed below:

a. AIM-7 sparrow

b. AIM-9 sidewinder

c. M61A1 20mm Automatic Gun System

d. AIM-120 AMRAAM (AFTER AFC 253 OR 292)

69. AIM-7 Sparrow. AIM-7 sparrows can be loaded on left and right fuselage stations and/or two outboard wing pylon stations.

70. AIM-7 fuselage sparrows are loaded on the LAU-116. The LAU-116 is bolted to the aircraft. Two LAU-116 receptacles mate with aircraft disconnect plugs to provide AIM-7 signals to/from the fuselage command signal encoder-decoder and power for the AIM-7 and LAU-116.

71. On 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292, AIM-7 installed on outboard wing pylons are loaded on the LAU-115, which is installed on the pylon BRU-32. Electrical interface is provided by a LAU-115 jumper cable which connects the LAU-115 to the AIR-AIR connector on pylon weapon disconnect/stowage receptacle panel. The AIR-AIR connector provides AIM-7 signals to/from the pylon command signal encoder-decoder and power for the AIM-7 and LAU-115.

72. AFTER AFC 253 OR 292, AIM-7 installed on inboard and outboard wing pylons are loaded on the LAU-115, which is installed on the pylon BRU-32. Electrical interface is provided by a LAU-115 jumper cable which connects the LAU-115 to the AIR-AIR and AIR-GROUND connectors on pylon weapon disconnect/stowage receptacle panel. The AIR-AIR and AIR-GROUND connectors provide AIM-7 signals to/from the pylon command signal encoder-decoder and power for the AIM-7 and LAU-115.

73. AIM-9 Sidewinder. AIM-9 sidewinders can be loaded on the two wing tip weapon stations and/or the two outboard wing pylons. Each pylon weapon station can carry two AIM-9 sidewinders.

74. Wing tip AIM-9 sidewinders are loaded on the LAU-7 which are bolted to the aircraft wing tips. Launcher receptacles mate with aircraft disconnect plugs to provide AIM-9 signals to/from wing tip command signal encoder-decoders and power for the AIM-9 and LAU-7.

75. Before AFC 253 or 292, two AIM-9 sidewinders can be loaded on each outboard wing pylon. They are loaded on the LAU-7 which are installed on the LAU-115 left and right side. The LAU-115 is installed on the BRU-32. Electrical interface is provided by a LAU-115 jumper cable which connects the LAU-115 to the AIR-AIR connector on pylon weapon disconnect/stowage receptacle panel. The AIR-AIR connector provides AIM-9 signals to/from the pylon command signal encoder-decoder and power for the AIM-9 and LAU-7. Electrical connectors on LAU-115 mate with connectors on the LAU-7.

76. AFTER AFC 253 OR 292, two AIM-9 Sidewinders can be loaded on each outboard wing pylon. They are loaded on the LAU-7 or LAU-127 which are installed on the LAU-115 left and right side. The LAU-115 is installed on the BRU-32. Electrical interface is provided by a LAU-115 jumper cable which connects the LAU-115 to the AIR-AIR and AIR-GROUND connectors on pylon weapon disconnect/

stowage receptacle panel. The AIR-AIR and AIR-GROUND connectors provides AIM-9 signals to/from the pylon command signal encoder-decoder and power for the AIM-9 and LAU-7 or AIM-9 and LAU-127. Electrical connectors on LAU-115 mate with connectors on the LAU-7 or LAU-127.

77. M61A1 20mm Automatic Gun System. The M61A1 20mm automatic gun system (gun system) is installed as a pallet in gun bay, door 3.

78. When the gun is installed, electrical interface is provided by a gun disconnect connector on the aircraft and mating connector on the pallet. Hydraulic quick disconnects are provided on the pallet to mate with aircraft hydraulic power and return lines. The Gun System principles of operation are in A1-F18AC-750-100.

79. AFTER AFC 253 OR 292, AIM-120 AMRAAM. AIM-120 AMRAAMs can be loaded on left and right fuselage stations and/or two inboard and two outboard wing pylon stations.

80. AIM-120 fuselage AMRAAMs are loaded on the LAU-116. The LAU-116 is bolted to the aircraft. Two LAU-116 receptacles mate with aircraft disconnect plugs to provide AIM-120 signals to/from the fuselage command signal encoder-decoder and power for the AIM-120 and LAU-116.

81. Two AIM-120 AMRAAMs can be loaded on each inboard and outboard wing pylon. They are loaded on the LAU-127 which are installed on the LAU-115( ) left and right side. The LAU-115 is installed on the BRU-32. Electrical interface is provided by a LAU-115 jumper cable which connects the LAU-115 to the AIR-AIR and AIR-GROUND connectors on pylon weapon disconnect/stowage receptacle panel. The AIR-AIR and AIR-GROUND connectors provide AIM-120 signals to/from the pylon command signal encoder-decoder and power for the AIM-120 and LAU-127. Electrical connectors on LAU-115 mate with connectors on the LAU-127.

82. Air To Ground Weapons. Air to ground (A/G) weapon loading is done on the five pylon weapon stations (see WP007 00, Figure 1). A/G weapons are listed below:

a. bombs

b. AGM-88 HARM

c. AGM-65 Maverick

d. AGM 84 Harpoon

e. rockets

f. gun system

g. AGM-45 Shrike

h. With ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM

i. AGM-84H SLAM ER (AFTER AFC 253 OR 292)

j. AGM-154 JSOW (AFTER AFC 253 OR 292)

k. GBU-31 JDAM (AFTER AFC 253 OR 292)

83. Bombs. Bombs can be loaded on any of the five pylon weapon stations. When single bomb loading is done, the bomb is loaded on the BRU-32. When the bomb loaded requires electrical fuzing, a jumper cable is installed between the bomb and fuzing receptacle on the BRU-32.

84. When loading two bombs on a pylon, bombs are loaded on the BRU-33 which is installed on the pylon BRU-32. Electrical interface is provided by two jumper cables which connect the BRU-33 to AIR-GND and FUZING connectors on pylon weapon disconnect/stowage panel. The AIR-GND connector provides BRU-33 signals to/from pylon command signal encoder-decoder and BRU-33 power. The FUZING connector provides electrical fuzing function.

85. AGM-88 HARM. HARM weapons can be loaded on the four wing pylons. HARM is loaded on the Launcher LAU-118, which is installed on the BRU-32. The HARM is preloaded on the LAU-118 before they are installed on the BRU-32.

86. Electrical interface is provided by a HARM jumper cable which connects the LAU-118 to the AIR-GND connector on the pylon weapon disconnect stowage receptacle panel. The AIR-GND connector provides HARM signals to/from pylon command signal encoder-decoder and power for the HARM and LAU-118.

87. AGM-65 Maverick. Maverick missiles can be loaded on the four Aircraft Wing Pylons. Maverick is loaded on the LAU-117, which is installed on the

BRU-32. The maverick is preloaded on the LAU-117 before being loaded on the BRU-32.

88. Electrical interface is provided by a LAU-117 jumper cable which connects the LAU-117 to the AIR-GND, FUZING, and VIDEO connectors on the pylon weapon disconnect/stowage receptacle panel. The AIR-GND connector provides maverick signals to/from pylon command signal encoder-decoder and power for the maverick and LAU-117. The VIDEO connector of the jumper cable enables weapon video to be sent to the armament computer. The FUZING connector provides electrical fuzing function.

89. AGM-84 Harpoon Missile. Harpoon missiles can be loaded on the four wing pylons. The harpoon is attached to the pylon BRU-32.

90. Electrical interface is provided by a harpoon jumper cable which connects to the AIR-GND and AIR-AIR connectors on the pylon disconnect/stowage receptacle panel. The jumper cable provides Harpoon signals to/from the encoder-decoder and power to the Harpoon missile.

91. AGM-84E SLAM Missile. SLAM missiles can be loaded on the four wing pylons. The SLAM is attached to the pylon BRU-32.

92. Rocket Pods. Rocket pods can be loaded on the four wing pylons. Rocket pods are loaded on the BRU-33 which are installed on the BRU-32.

93. Electrical interface is provided by a BRU-33 wing pylon jumper cable which connects the BRU-33 to AIR-GND connector on the pylon disconnect/stowage receptacle panel. The AIR-GND connector provides BRU-33 signals to/from pylon command signal encoder-decoder and BRU-33 power.

94. Gun System. The gun system can be selected for A/A or A/G operation. Gun system interface description is provided in paragraph 77.

95. AGM-45 Shrike. Shrike missiles are loaded on the four wing pylon stations. Shrike is loaded on the LAU-118 Launcher, which is installed on the BRU-32. The shrike can be preloaded on the LAU-118 before they are installed on the BRU-32 or it can be loaded on the LAU-118 after the LAU-118 has been loaded on the BRU-32.

96. Electrical interface is provided by a shrike jumper cable which connects the LAU-118 to the AIR-GND connector on the pylon weapon stowage disconnect receptacle panel. The AIR-GND connector provides shrike signals to/from pylon command signal encoder-decoder and power for the shrike and LAU-118.

97. With ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM Missile. SLAM missiles can be loaded on the four wing pylons. The SLAM is attached to the pylon BRU-32.

98. With ARMAMENT COMPUTER CP-1342 /AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) Electrical interface is provided by a SLAM jumper cable which connects to the AIR-GND and AIR-AIR connectors on the pylon disconnect/stowage receptacle panel. The jumper cable provides SLAM signals to/from the encoder-decoder and power to the SLAM missile.

99. AGM-84H SLAM ER Missile. SLAM ER missiles can be loaded on the four wing pylons. The SLAM is attached to the pylon BRU-32.

100. Electrical interface is provided by the 1760 Jumper Bundle which connects to the AIR-GND and AIR-AIR connectors on the pylon disconnect/stowage receptacle panel. The jumper cable provides SLAM ER signals to/from the encoder-decoder and power to SLAM ER missiles.

101. AGM-154 JSOW Missile. JSOW missiles can be loaded on the four wing pylons. The JSOW is attached to the pylon BRU-32.

102. Electrical interface is provided by the 1760 Jumper Bundle which connects to the AIR-GND and AIR-AIR connectors on the pylon disconnect/stowage receptacle panel. The jumper cable provides JSOW signals to/from the encoder-decoder and power to JSOW missiles.

103. GBU-31 JDAM Weapon. JDAM weapons can be loaded on the four wing pylons. The JDAM is attached to the pylon BRU-32.

104. Electrical interface is provided by the 1760 Jumper Bundle which connects to the AIR-GND and AIR-AIR connectors on the pylon disconnect/stowage receptacle panel. The jumper cable provides JDAM signals to/from the encoder-decoder and power to JDAM weapons.

105. **OPTIONAL STORES.** Optional stores can be loaded on weapon stations 3, 4, 5, 6 and 7 as required for the aircraft mission. Optional stores are listed below:

a. Laser Detector-Tracker-Strike Camera Set AN/ASQ-173 (LDT/SCAM pod)

b. Detecting Set AN/AAS-38 (FLIR pod).

c. Aircraft Fuel Tank FPU/6( ) or FPU/8( )

d. Navigation Infrared Receiving Set AN/AAR-50 (NFLIR pod) (station 6) (AFTER AFC 253 OR 292)

e. Guided Weapon Control-Monitor Set AN/AWW-13 (Advanced data link pod) (stations 2, 3, 5, 7 and 8) (AFTER AFC 253 OR 292)

106. **Laser Detector-Tracker-Strike Camera Set AN/ASQ-173.** The laser detector-tracker-strike camera set (LDT/SCAM pod) is used on attack configured aircraft. The LDT pod bolts to the aircraft structure instead of the launcher on weapon station 6. The laser detector tracker system principles of operation are in A1-F18AC-743-100 and the strike camera principles of operation are in A1-F18AC-770-100.

107. **Detecting Set AN/AAS-38.** The detecting set (FLIR pod) is used on attack configured aircraft. The set bolts to the aircraft structure instead of the launcher on weapon station 4. The forward looking infrared (FLIR) system principles of operation are in A1-F18AC-744-100.

108. The armament computer provides video switching for the FLIR system video. Relay switching logic in the armament computer enables FLIR system video to be displayed by the multipurpose display group when FLIR is selected.

109. **Aircraft Fuel Tank FPU/6( ) or FPU/8( ).** Aircraft fuel tanks can be loaded on weapon stations 3, 5 and 7. Each FPU/6 tank carries 315 gallons of fuel. Each FPU/8 tank holds 330 gallons of fuel.

110. Fuel tanks are loaded on the BRU-32 on the pylon. Electrical interface is provided by an external fuel tank jumper cable. On the inboard pylon stations, the jumper cable is connected between the fuel tank and AIR-GND connector on pylon weapon disconnect/stowage receptacle panel. On centerline pylon station, the jumper cable is connected between the fuel tank and centerline pylon disconnect connector.

111. The SMS provides the jettison functions for the BRU-32 when fuel tanks are loaded. The stores display, 1 FUEL, is provided by the SMS for stations with fuel tanks.

112. **AFTER AFC 253 OR 292, Navigation Infrared Receiving Set AN/AAR-50.** The navigational forward looking infrared pod (NFLIR pod) is used to aid in low level, high speed night flying under adverse weather conditions. The NFLIR pod bolts to the aircraft structure instead of the launcher on weapon station 6. The Navigational Infrared Receiving System principles of operation are in A1-F18AG-746-100.

113. **AFTER AFC 253 OR 292, Guided Weapon Control-Monitor Set AN/AWW-13 (Advanced Data Link Pod).** Guided weapon control-monitor set is used on attack configured aircraft. Advanced D/L pod is installed on the BRU-32 and can be used on weapon stations 2, 3, 5, 7 and 8. The advanced D/L pod is loaded to provide guidance for Walleye I ER/DL weapons. The pod also provides interface with SLAM and SLAM ER weapons.

114. Electrical interface is provided by the AN/AWW-13 jumper cable which is connected between the pod and pylon disconnect connectors. The jumper cable has a video cable, pod signal connector, and fuzing connector. The fuzing connector is stowed when used with the advanced D/L pod.

115. The encoder-decoders provide control functions of the advanced D/L pod. Discrete interface with the armament computer is on the serial data bus. The serial data bus signals control operation of the pod.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - RELATED SYSTEMS SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

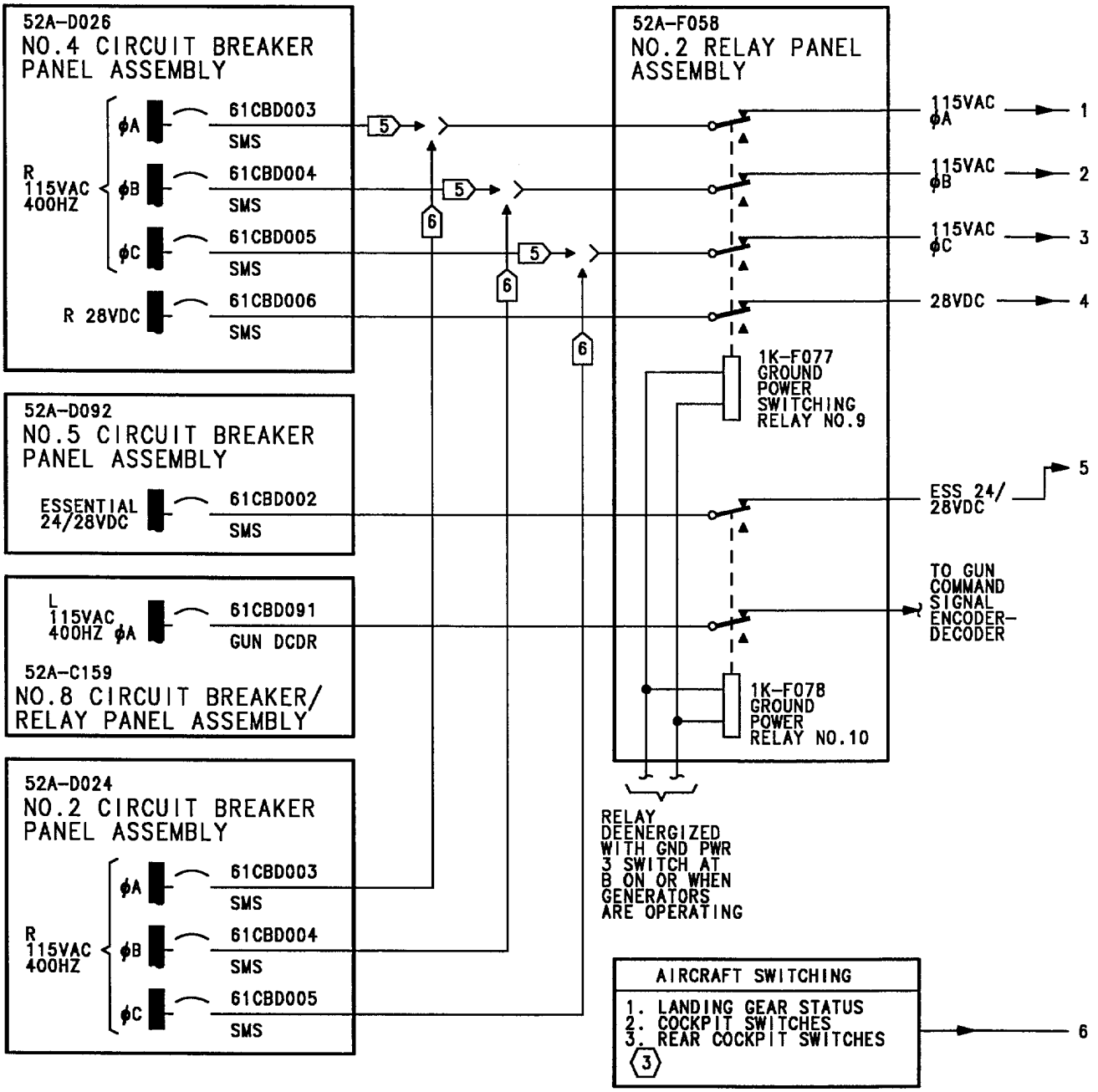
Subject	Page No.
Introduction	1
Stores Management System Related Systems Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The schematic in this work package provides support for the data in WP010 00.



01100101

Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 1)

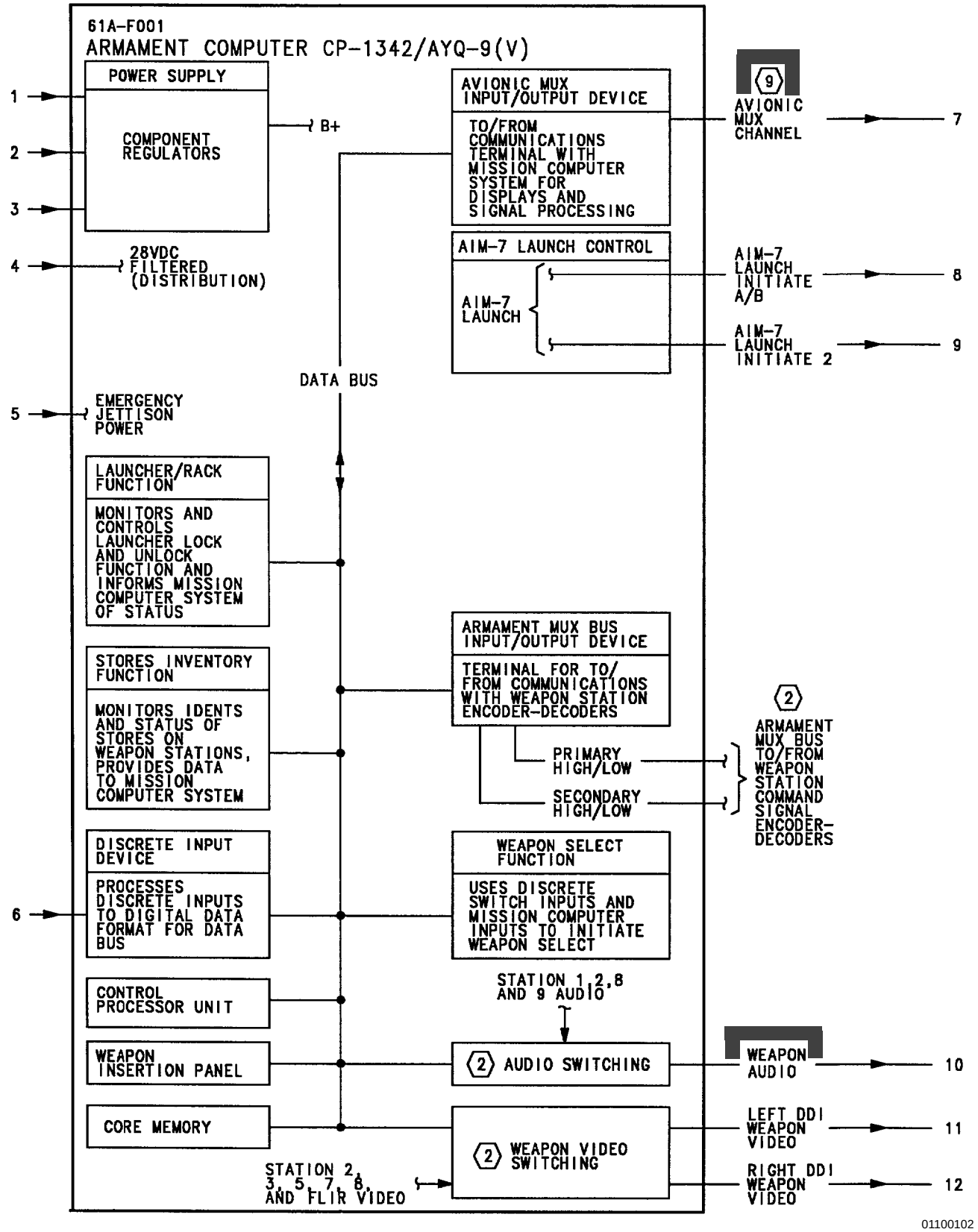


Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 2)

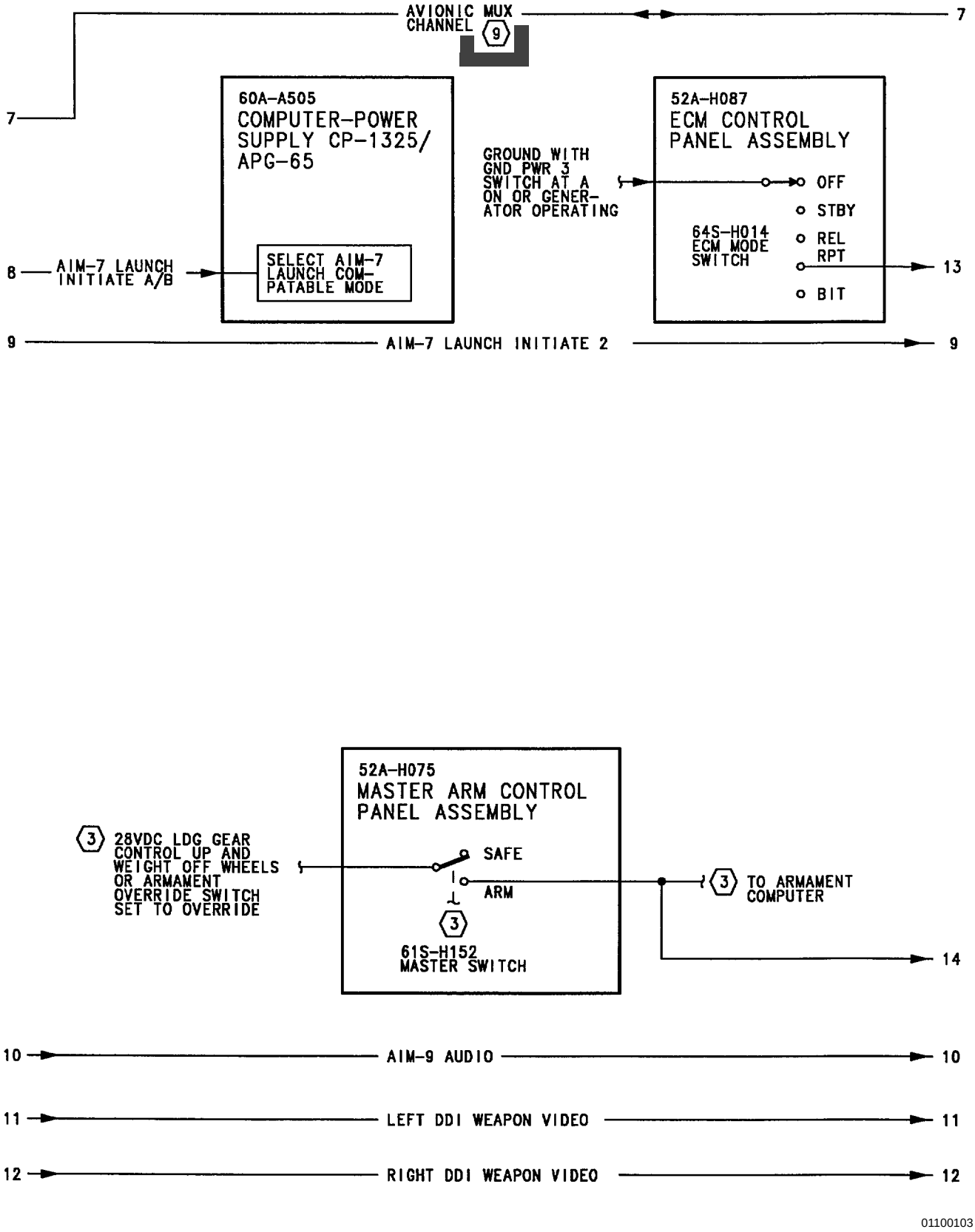
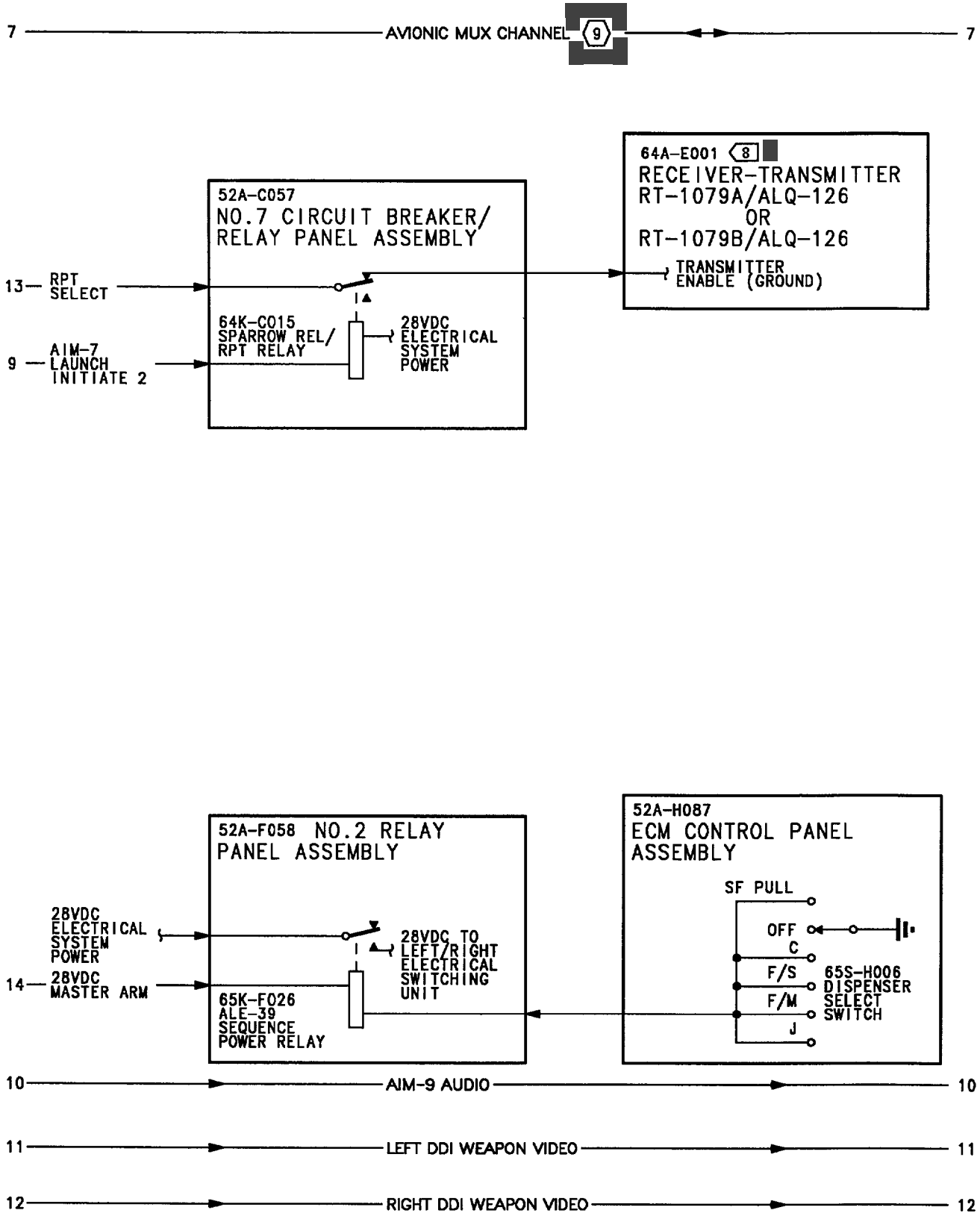


Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 3)



01100104

Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 4)

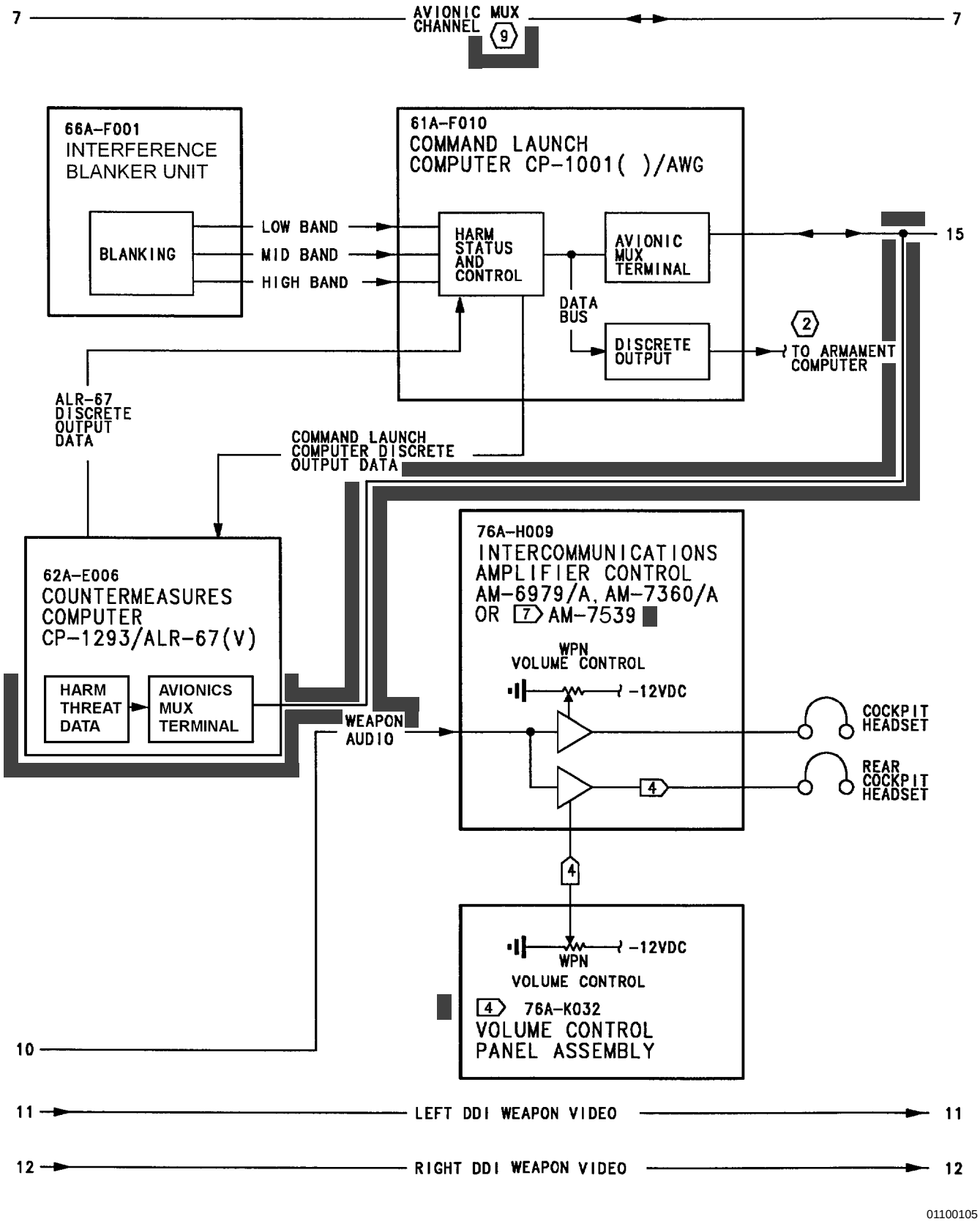


Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 5)

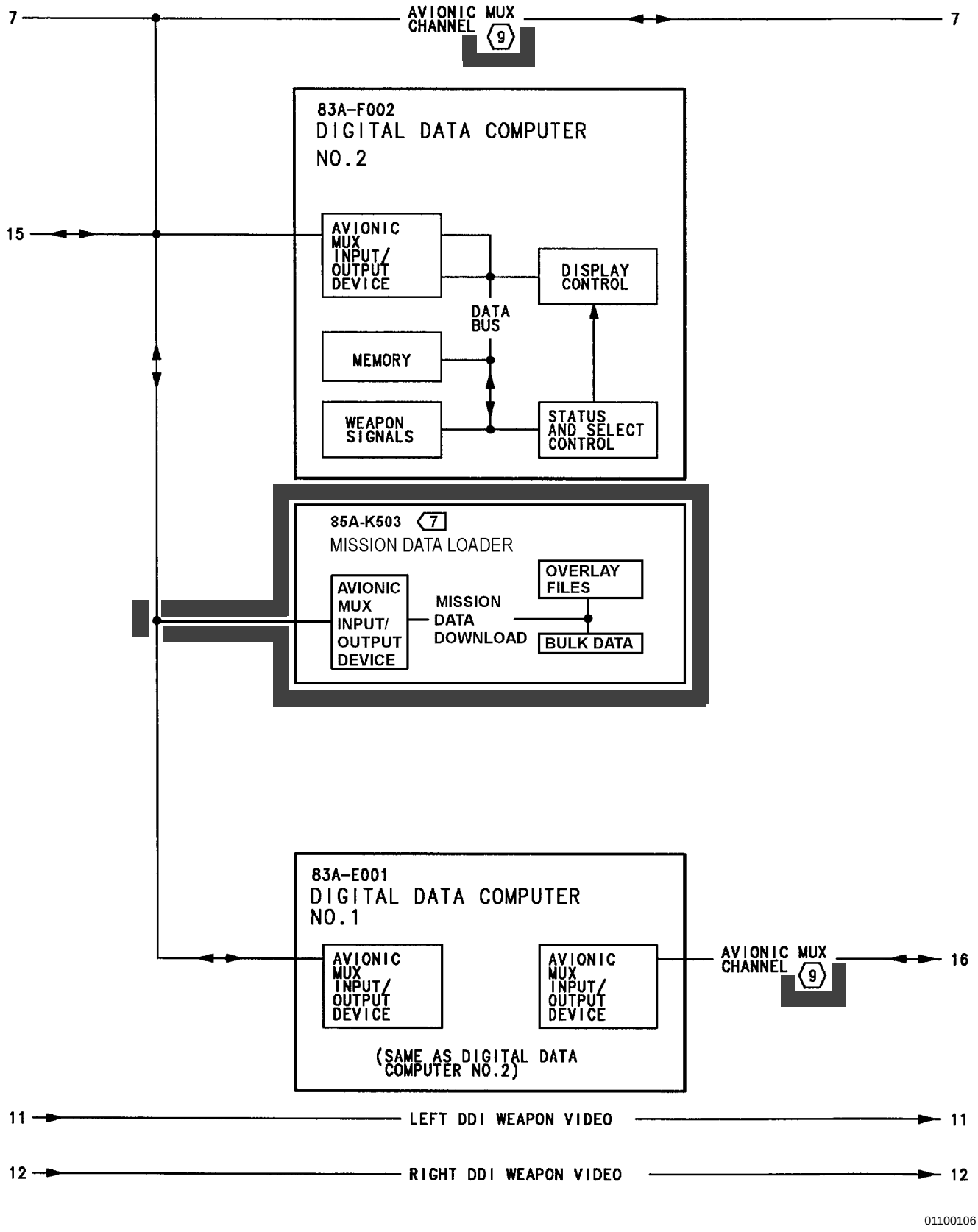
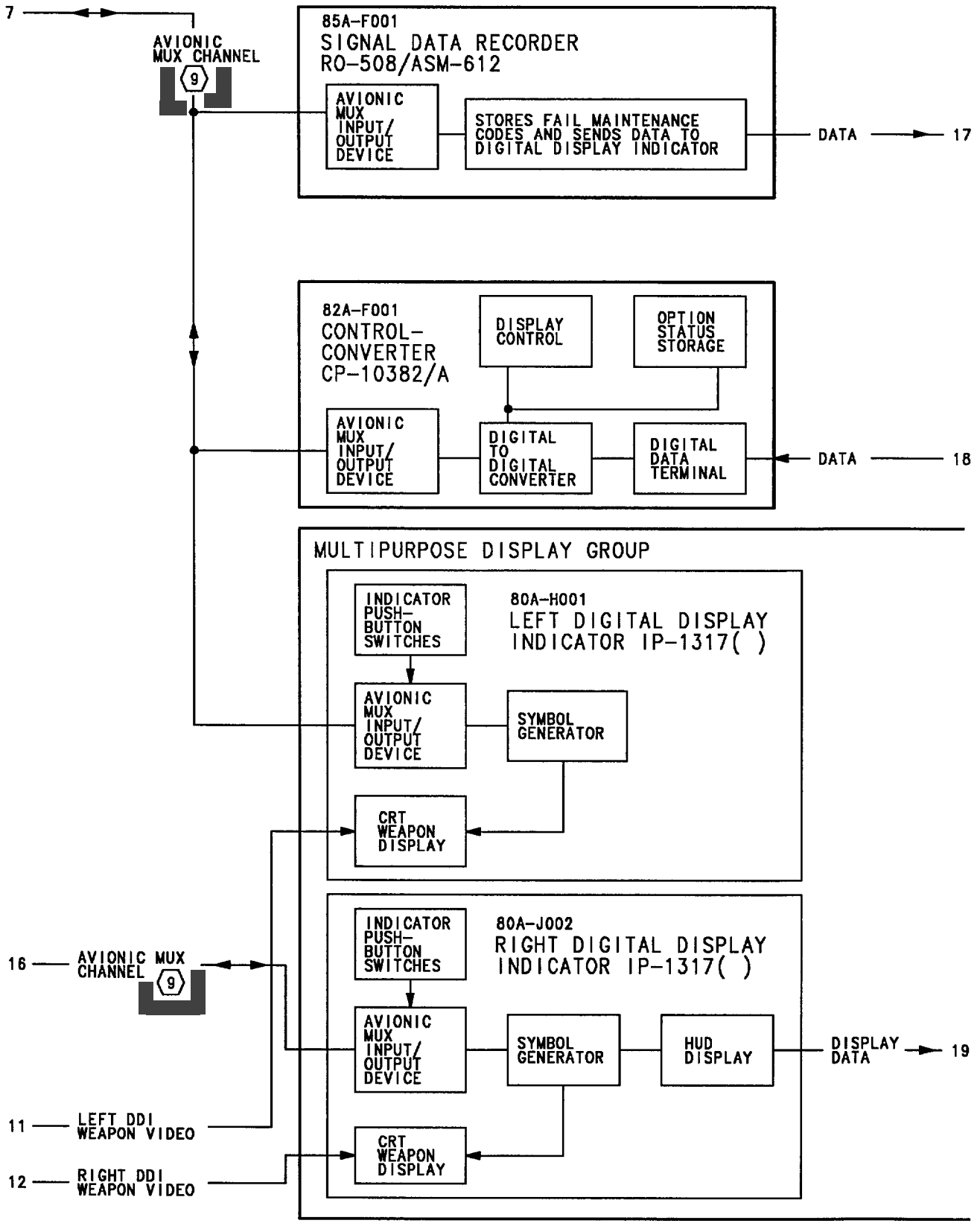
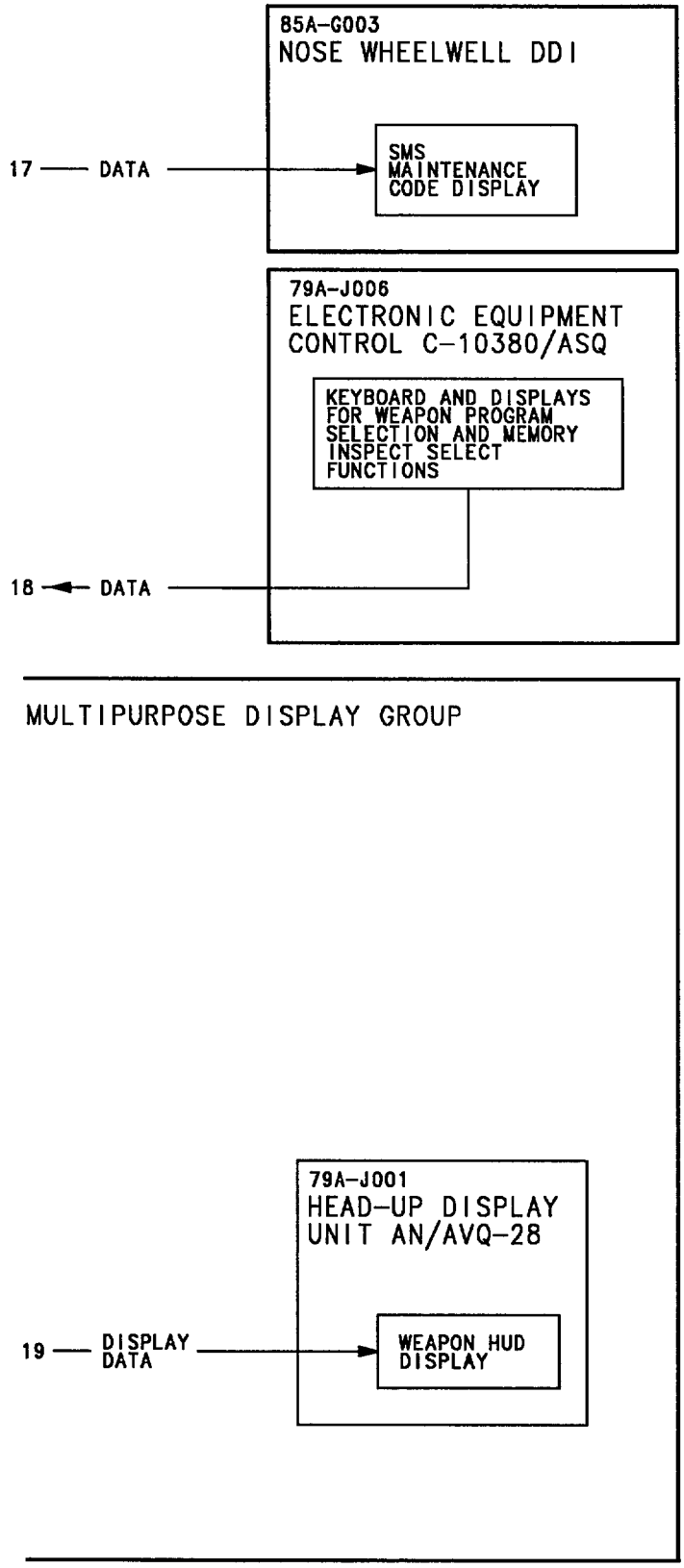


Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 6)



01100107

Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 7)



LEGEND

1. NONSTANDARD ABBREVIATIONS: SEE WP002 01.

(2) STORES MANAGEMENT SYSTEM SIMPLIFIED SCHEMATIC, WP009 00.

(3) STORES MANAGEMENT SYSTEM DISCRETE SWITCHING SIMPLIFIED SCHEMATIC, WP013 00.

[4] F/A-18B.

[5] 161353 THRU 161359.

[6] 161360 AND UP.

[7] ON F/A-18 161535 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

[8] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

(9) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

01100108

Figure 1. Stores Management System Related Systems Simplified Schematic (Sheet 8)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

DESCRIPTION - CONTROLS AND INDICATORS

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Controls and Indicators Simplified Schematics WP013 00
Stores Management System Description WP007 00
Stores Management System Locator WP014 00

Alphabetical Index

Subject	Page No.
Aircraft Controller Grip Assembly (52A-J501), Table 4	6
Controls	3
Controls and Indicators	2
ECM Control Panel Assembly (52A-H087), Table 15	14
EMERG JETT Panel Assembly (61A-K237), Table 19	16
Flaps, Landing Gear and Stores Indicator Panel (52A-H084), Table 3	6
GND PWR Control Panel Assembly (1A-H004), Table 17	15
Indicators	2
Intercommunication Amplifier Control AM-6979/A, AM-7360/A or AM-7539/A (AFTER AFC 253 or 292) (76A-H009), Table 13	14
Introduction	2
LDG GEAR Control (12A-H008), Table 11	13
Left Throttle Grip (52A-H049), Table 7	10
LH Vertical Console Control Panel (52A-H077), Table 6	9
Map Gain Control Panel Assembly (52A-J076), Table 16	15
Master Arm Control Panel Assembly (52A-H075), Table 1	3
Master Mode Select Panel Assembly (61A-L217), Table 2	5
MC/HYD ISOL Panel Assembly (52A-H081), Table 20	16
Nose Wheelwell Maintenance Panel, Table 18	16
Rear Aircraft Controller Grip Assembly (52A-L504), Table 5	8
Rear Left Throttle Grip (52A-K301), Table 8	10
Rear Right Throttle Grip (52A-K302), Table 10	12
Right Throttle Grip (52A-H048), Table 9	11
SNSR Pod Control Box Panel Assembly (52A-J080), Table 12	13
Volume Control Panel Assembly (76A-K032), Table 14	14

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 37	16 Feb 84	Deletion of Landing Gear Handle Logic from AN/AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 27	-	Leading Edge Flap/Control Stick Changes (ECP MDA-F/-18-00044)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores management system (SMS) controls and indicators description is provided in this work package (WP). Additional description and operation WPs are listed in WP001 00.

3. Refer to WP013 00 for simplified schematic of controls and indicators.

4. Refer to WP014 00 for component location.

5. CONTROL AND INDICATORS.

6. **INDICATORS.** The SMS displays are controlled by the mission computer system. The Armament Computer CP-1342/AYQ-9(V) and Command Launch Computer CP-1001( )/AWG input data to the mission computer system for stores displays, weapon status, and BIT data.

7. Indicators which display SMS data are listed below:

a. Left Digital Display Indicator IP-1317( ) (80A-H001)

b. Rear Left Digital Display Indicator IP-1318( ) (80A-K019)

c. Right Digital Display Indicator IP-1317( ) (80A-J002)

d. Rear Right Digital Display Indicator IP-1318( ) (80A-L017)

e. Head-Up Display Unit AN/AVQ-28 (79A-J001)

f. Nose Wheelwell DDI (85A-G003)

g. Electronic Equipment Control C-10380/ASQ (79A-J003)

h. Rear Electronic Equipment Control C-10380/ASQ (76A-K026)

8. **Digital Display Indicators IP-1317( ) And IP-1318( ).** The digital display indicators (DDI) are part of the multipurpose display group. The left and right DDI are on the main instrument panel. On F/A-18B, the rear left and rear right DDI are in the rear cockpit on the rear instrument panel. See WP014 00 for DDI locations.

9. When turned on, the rear left DDI will display what is selected for display on the left DDI. The rear right DDI will display what is selected for display on the right DDI.

10. The SMS uses the DDI's to display weapon video, stores inventory, and BIT displays. The 20 pushbutton switches around the edge of the DDI display area are used to select store displays, air-to-ground (A/G) weapons, and mode/program options. When a display is selected, options for that display will appear next to the pushbutton switches applicable to that display.

11. **Head-Up Display Unit AN/AVQ-28.** The head-up display unit (HUD) is part of the multipurpose display group. See WP014 00 for HUD location.

12. The SMS uses the HUD to display ARM/SAFE status, weapon selected, weapon count, and weapon data required for steering and weapon release.

13. **Nose Wheelwell DDI.** The nose wheelwell DDI is part of the maintenance status display and recording system. See WP014 00 for nose wheelwell DDI location.

14. SMS BIT status is monitored by the mission computer system. When a failure is detected, the mission computer system sends information to the maintenance status display and recording system for display on the nose wheelwell DDI. The display on the nose wheelwell DDI is a three digit maintenance code which represents the failed component.

15. **Electronic Equipment Controls C-10380/ ASQ.** The electronic equipment control is part of the mission computer system. On F/A-18B, the rear electronic equipment control operates in parallel with the electronic equipment control in the cockpit.

16. The SMS uses the keyboard switches, option display/select switches, and scratch pad display to select A/G programs and do memory inspect.

17. **CONTROLS.** Controls used by the SMS are in tables 1 thru 19. Each table lists the SMS control and describes the switch function.

18. **Master Arm Control Panel Assembly (52A-H075).** The master arm control panel assembly is on the left main instrument panel. See WP014 00 for panel location. Table 1 identifies switches and functions of controls on the master arm control panel assembly used by the SMS.

Table 1. Master Arm Control Panel Assembly (52A-H075)

Control/Indicator	Function
A/A switch	Momentary pushbutton light/switch. Light is enabled by a discrete ground from the armament computer. Switch provides a select/deselect discrete to the armament computer. The select/deselect discrete and A/G switch logic are sent to the mission computer system by way of the avionic mux bus to determine selection of aircraft master mode. With A/A and A/G lights off, mission computer system will operate in navigation mode. Provides A/A select logic to lock/unlock function in the armament computer. Initiates periodic BIT of all A/A weapon stations.
light on	Indicates A/A mode is selected. Light comes on when switch is pressed to on or when an A/A weapon is selected by the air-to-air weapon select switch on aircraft controller grip assembly.
pressed to off	Turns A/A light off. Deselects A/A mode and selects navigation mode.
pressed to on	Lights A/A switch and selects A/A mode. If A/G light is on, turns off A/G light and deselects A/G mode. If A/G light is off, deselects navigation mode. Enables unlock commands to A/A weapon station launchers when all gear up and locked is true.
A/G switch	Momentary pushbutton light/switch. Light is enabled by a discrete ground from the armament computer. Switch provides a select/deselect discrete to the armament computer. The select/deselect discrete and A/A switch logic are sent to the mission computer system by way of the avionic mux bus to determine selection of aircraft master mode. With A/G and A/A lights off, mission computer will operate in navigation mode. Provides A/G select logic to lock/unlock function in the armament computer. Initiates periodic BIT of all A/G weapon stations.
light on	Indicates A/G mode is selected. Light comes on when switch is pressed to on.
pressed to off	Turns A/G light off. Deselects A/G mode and selects navigation mode.

Table 1. Master Arm Control Panel Assembly (52A-H075) (Continued)

Control/Indicator	Function
pressed to on	Lights A/G switch and selects A/G mode. If A/A light is on, turns off A/A light and deselects A/A mode. If A/A light is off, deselects navigation mode. Enables unlock commands to A/G weapon station launchers/racks when all gear up and locked is true.
MASTER switch	Lever locked toggle switch powered when LDG GEAR handle is up and right main landing gear is weight off wheels or when ARMAMENT OVERRIDE switch is set to OVERRIDE.
SAFE	Disables 28vdc arm from the armament computer, HARM power control relays, and ALE-39 power sequence relay. In SAFE, weapons cannot be released or fired. Selective jettison is disabled, however, emergency jettison can be initiated. On 161925 AND UP, disables release consent.
ARM	Applies 28vdc arm enable to the chaff dispenser set and SMS. The armament computer receives the arm signal and sends an arm signal to the nine command signal encoder-decoders by way of primary and secondary armament mux bus. The command signal encoder-decoder selected for weapon launch provides the required arm discrete to the weapon station to enable release, fire, or jettison. The armament computer also sends an arm signal to the mission computer by way of the avionic mux bus for weapon status and display. Arm voltage is applied to the coil of HARM power control relays for stations 2, 3, 7, and 8. When a HARM weapon is loaded on a weapon station, a ground is applied to the relay coil to apply 115vac to the HARM weapon.
EMERG JETT switch	Momentary pushbutton switch. When pressed, jettisons all stores loaded on the BRU-32 racks on the five pylon weapon stations. Initiates periodic BIT of all weapon stations.
PUSH TO JETT	Provides a discrete input to armament computer. Armament computer provides an emergency jettison discrete output to the five pylon weapon station command signal encoder-decoders.

19. **Master Mode Select Panel Assembly (61A-L217).** On F/A-18B, the master mode select panel is on the rear main instrument panel. See WP014 00 for panel location. Table 2 identifies the switches and functions of controls used by the SMS.

Table 2. Master Mode Select Panel Assembly (61A-L217)

Control/Indicator	Function
A/A switch	Momentary pushbutton light/switch. Switch is in parallel with A/A switch on master arm control panel assembly in cockpit. Light is enabled by a discrete ground from the armament computer. Switch provides a select/deselect discrete to the armament computer. The select/deselect discrete and A/G switch logic are sent to the mission computer system by way of the avionic mux bus to determine selection of aircraft master mode. With A/A and A/G lights off, mission computer system will operate in navigation mode. Provides A/A select logic to lock/unlock function in the armament computer. Initiates periodic BIT of all A/A weapon stations.
light on	Indicates A/A mode is selected. Light comes on when switch is pressed to on, A/A switch on master arm control panel assembly is pressed to on, or when an A/A weapon is selected by the air-to-air weapon select switch on aircraft controller grip assembly.
pressed to off	Turns A/A light off. Deselects A/A mode and selects navigation mode.
pressed to on	Lights A/A switch and selects A/A mode. If A/G light is on, turns off A/G light and deselects A/G. If A/G light is off, deselects navigation mode. Enables unlock command to A/A weapon station launchers when all gear up and locked is true.
A/G switch	Momentary pushbutton light/switch. Switch is in parallel with A/G switch on master arm control panel assembly in cockpit. Light is enabled by a discrete ground from the armament computer. Switch provides a select/deselect discrete to the armament computer. The select/deselect discrete and A/A switch logic are sent to the mission computer system by way of the avionic mux bus to determine selection of aircraft master mode. With A/G and A/A lights off, mission computer will operate in navigation mode. Provides A/G select logic to lock/unlock function in the armament computer. Initiates periodic BIT of all A/G weapon stations.
light on	Indicates A/G mode is selected. Light comes on when switch is pressed to on or when A/G switch on master arm control panel assembly is pressed to on.
pressed to off	Turns A/G light off. Deselects A/G mode and selects navigation mode.
pressed to on	Lights A/G switch and selects A/G mode. If A/A light is on, turns off A/A light and deselects A/A mode. If A/A light is off, deselects navigation mode. Enables unlock commands to A/G weapon station launchers/racks when all gear up and locked is true.

20. **Flaps, Landing Gear And Stores Indicator Panel (52A-H084).** The flaps, landing gear and stores indicator panel is on the left main instrument panel. See WP014 00 for panel location. Table 3 identifies the switches and functions of controls used by the SMS.

21. **Aircraft Controller Grip Assembly (52A-J501).** On 161353 THRU 161519 BEFORE F/A-18 AFC 27 the aircraft controller grip assembly is connected to the Control Stick Sensor DT-601/ASW-44 in the cockpit. On 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27, the aircraft controller grip assembly is connected to Control Stick Grip Adapter Assembly 52A-Y312 in the cockpit. See WP014 00 for assembly location. Table 4 identifies switches and functions of controls used by the SMS.

Table 3. Flaps, Landing Gear and Stores Indicator Panel (52A-H084)

Control/Indicator	Function
CTR, LI, RI, LO and RO JETT STATION SELECT switches	Alternate action pushbutton light/switch. Selects one of the five pylon weapon stations for selective jettison. Used with SELECT JETT switch to jettison stores or rack/launchers. See table 6.
CTR	Selects centerline pylon weapon station 5 for jettison.
LI	Selects left wing inboard pylon weapon station 3 for jettison.
RI	Selects right wing inboard pylon weapon station 7 for jettison.
LO	Selects left wing outboard pylon weapon station 2 for jettison.
RO	Selects right wing outboard pylon weapon station 8 for jettison.

Table 4. Aircraft Controller Grip Assembly (52A-J501)

Control/Indicator	Function
air-to-air weapon select switch	Three position switch which selects A/A weapon/A/A aircraft master mode. Switch functions are discrete inputs to the armament computer. Switch functions are sent to the mission computer system by way of the avionic mux bus for selection and displays.
sparrow (fwd)	Selects AIM-7 for preparation and launch. Selects A/A aircraft master mode if not previously selected.
sidewinder (down)	Selects AIM-7 for preparation and launch. Selects A/A aircraft master mode if not previously selected.
gun (aft)	Selects M61A1 20MM automatic gun system for preparation and firing. Selects A/A aircraft master mode if not previously selected.
AMRAAM (right) (AFTER AFC 253 OR 292)	Selects first AIM-120 in firing sequence for preparation and launch. Selects A/A aircraft master mode if not previously selected. Susequent selection steps to the next AIM-120 in the firing sequence.

Table 4. Aircraft Controller Grip Assembly (52A-J501) (Continued)

Control/Indicator	Function
sensor control switch	Four position, momentary contact, center off switch. Switch functions are discrete inputs to the armament computer. Switch functions are sent to the mission computer system by way of avionic mux bus for selection and display.
fwd	In A/G and navigation modes, assigns the throttle designator control (TDC), on right throttle grip assembly, to the head-up display (HUD). In A/A mode, puts radar in boresight (BST) mode.
aft	In A/G and navigation modes, assigns the TDC, on right throttle grip assembly, to the center Horizontal Indicator IP-1350/A. In A/A mode, puts radar in vertical acquisition mode (VACQ).
left	In A/G and navigation modes, assigns the TDC priority to sensor displayed on the left Digital Display Indicator IP-1317( ). In A/A mode, puts radar in wide acquisition mode (WACQ).
right	In A/G and navigation modes, assigns TDC priority to sensor displayed on the right Digital Display Indicator IP-1317( ). In A/A mode, puts radar in auto acquisition mode (AACQ).
A/G weapon release switch	When pressed, provides digital coded release signals for A/G weapons selected by the mission computer. Selects HUD video and turns on event markers for video recording system.
gun/A/A missile trigger switch	Two detent switch used to fire A/A missiles and the M61A1 20MM automatic gun.
detent 1	Selects HUD video for video recording system.
detent 2	Switch provides digital coded discrete inputs to the armament computer to initiate missile launch or gun fire. Turns on event markers for video recording system.

22. **Rear Aircraft Controller Grip Assembly (52A-L504).** On F/A-18B 161354 THRU 161360 BEFORE F/A-18 AFC 27, the rear aircraft controller grip assembly is connected to the rear Control Stick Sensor DT-601/ASW-44 in the rear cockpit. On F/A-18B 161704 AND UP: ALSO 161354 THRU 161360 AFTER F/A-18 AFC 27, the rear aircraft controller grip assembly is connected to the Rear Control Stick Grip Adapter Assembly 52A-Y312. See WP014 00 for assembly location. Table 5 identifies switches and functions of controls used by the SMS.

Table 5. Rear Aircraft Controller Grip Assembly (52A-L504)

Control/Indicator	Function
air-to-air weapon select switch	Three position switch which selects A/A weapons. Switch is in parallel with A/A weapon select switch on fwd cockpit aircraft controller grip assembly. Switch operative only when A/A master mode has been previously selected. Switch functions are discrete inputs to the armament computer. Switch functions are sent to the mission computer system by way of the avionic mux bus for selection and displays.
sparrow (fwd)	Selects AIM-7 for preparation and launch.
sidewinder (down)	Selects AIM-9 for preparation and launch.
gun (aft)	Selects M61A1 20MM automatic gun system for preparation and firing.
sensor control switch	Four position, momentary contact, center off switch. Switch is in parallel with sensor control switch on fwd cockpit aircraft controller grip assembly. Switch functions are discrete inputs to the armament computer. Switch functions are sent to the mission computer system by way of the avionic mux bus for selection and display.
fwd	In A/G and navigation modes, assigns the TDC, on right throttle grip assembly, to the head-up display (HUD). In A/A mode, puts radar in boresight (BST) mode.
aft	In A/G and navigation modes, assigns the TDC, on right throttle grip assembly, to the center Horizontal Indicator IP-1350/A and the rear center Digital Display Indicator IP-1318( ), since it is a duplicate display. In A/A mode, puts radar in vertical acquisition mode (VACQ).
left	In A/G and navigation modes, assigns the TDC priority to sensor displayed on the left Digital Display Indicator IP-1317( ) and the rear left Digital Display Indicator IP-1318( ) since it is a duplicate display. In A/A mode, puts radar in wide acquisition mode (WACQ).
right	In A/G and navigation modes, assigns TDC priority to sensor displayed on the left Digital Display Indicator IP-1317( ) and the rear right Digital Display Indicator IP-1318( ) since it is a duplicate display. In A/A mode, puts radar in auto acquisition mode (AACQ).
A/G weapon release switch	Inoperative
gun/A/A missile trigger switch	Inoperative

23. **LH Vertical Console Control Panel (52A-H077).** The left hand vertical console control panel assembly is in the cockpit, left of the main instrument panel. See WP014 00 for panel location. Table 6 identifies the switches and functions of controls used by the SMS.

Table 6. LH Vertical Console Control Panel (52A-H077)

Control/Indicator	Function
SELECT JETT switch	Five position rotary/center momentary pushbutton switch used for selective jettison. Switch provides selective jettison of the fuselage stations. Switch provides jettison of the five pylon weapon station as selected by the JETT STATION SELECT switches on flap, landing gear and stores indicator panel. See table 3. Switch outputs are discrete inputs to the armament computer. The armament computer determines the type of jettison and sends release commands to the weapon station command signal encoder-decoder selected. Excitation for the JETT switch is provided by the armament computer to enable sequential release of stores/launcher/racks when more than one weapon is loaded on a weapon station. When set to any position other then SAFE, switch inputs to the Armament Computer enable launcher/rack unlock commands.
L FUS MSL	Selects weapon station 4 for jettison when an AIM-7 weapon is loaded.
SAFE	Disables the selective jettison function.
R FUS MSL	Selects weapon station 6 for jettison when an AIM-7 weapon is loaded.
RACK LCHR	Provides release of racks and launchers attached to the pylon bomb rack(s) for the pylon weapon station(s) selected by the JETT STATION SELECT switch.
STORES	Provides release of stores attached to racks and launchers for the pylon weapon station selected by the JETT STATION SELECT switch.
JETT (center pushbutton)	Starts digital coded signal for jettison release of selected weapon station stores/racks/launcher.

24. **Left Throttle Grip (52A-H049).** The left throttle grip assembly is part of the throttle quadrant (52A-H088) on the left console. See WP014 00 for throttle grip location. Table 7 identifies the switches and functions of controls used by the SMS.

25. **Rear Left Throttle Grip (52A-K301).** On F/A-18B, rear left throttle grip assembly is part of the aft throttle quadrant (52A-K505) on the rear left console. See WP014 00 for throttle grip location. Table 8 identifies the switches and function of controls used by the SMS.

Table 7. Left Throttle Grip (52A-H049)

Control/Indicator	Function
HARM target sequence/FLIR FOV switch	Momentary pushbutton switch which controls the forward looking infrared (FLIR) field of view (FOV). Switch controls high speed anti-radiation missile (HARM) target sequencing. Switch output is a discrete input to the armament computer. Armament computer sends switch data to the mission computer system by way of the avionic mux bus.
FLIR FOV	When pressed, switch changes FOV of FLIR display alternately from wide to narrow.
HARM target sequence	When pressed, provides manual stepping of HARM priority targets by way of the command launch computer with HARM weapons selected.

Table 8. Rear Left Throttle Grip (52A-K301)

Control/Indicator	Function
HARM target sequence/FLIR FOV switch	Momentary pushbutton switch which controls the forward looking infrared (FLIR) field of view (FOV). Switch controls high speed anti-radiation missile (HARM) target sequencing. Switch is in parallel with HARM target sequence/FLIR FOV switch on fwd cockpit left throttle grip assembly. Switch output is a discrete input to the armament computer. Armament computer sends switch data to the mission computer system by way of the avionic mux bus.
FLIR FOV	When pressed, switch changes FOV of FLIR display alternately from wide to narrow.
HARM target sequence	When pressed, provides manual stepping of HARM priority targets by way of the command launch computer with HARM weapons selected.

26. **Right Throttle Grip (52A-H048).** The right throttle grip assembly is part of the throttle quadrant (52A-H088) on the left console. See WP014 00 for throttle grip location. Table 9 identifies the switches and function controls used by the SMS.

Table 9. Right Throttle Grip (52A-H048)

Control/Indicator	Function
cage/uncage switch	Momentary pushbutton switch which provides a discrete input to the armament computer. The armament computer sends this data to the mission computer system by way of the avionic mux bus.
NAV mode:	Used to cage or uncage the velocity vector on the HUD.
A/A mode:	
GUN:	Used to set the size of the reticle in the backup or disturbed modes, and control range computations.
Sidewinder:	Controls sidewinder seeker pointing and/or lockon.
AIM-7/AIM-9 End to End tests	Starts end to end test when test adapters installed on A/A weapon stations.
A/G mode:	
GUN:	In the CCIP mode, with the switch pressed and held the reticle is positioned at the 5000 foot range.
RKT:	In the CCIP mode the reticle is set at the 8000 foot range with the switch pressed and held.
WE:	Controls seeker head lockon, cage and uncage function.
MAV:	Used to blow the seeker head cover, cage and uncage the seeker head.
HARM:	In the TOO mode, commands the CLC to pass hand off information to the missile about the selected priority target.
throttle designator control (TDC)	Force transducer/momentary pushbutton switch used by aircraft sensor systems for positioning and lockon.
	Provides positioning and lockon of A/G weapons with television displays.

27. **Rear Right Throttle Grip (52A-K302).** On F/A-18B, rear right right throttle grip assembly is part of the throttle quadrant (52A-K505) on the rear left console. See WP014 00 for throttle grip location. Table 10 identifies the switches and functions and controls used by the SMS.

Table 10. Rear Right Throttle Grip (52A-K302)

Control/Indicator	Function
cage/uncage switch	Momentary pushbutton switch which provides a discrete input to the armament computer. The armament computer sends this data to the mission computer system by way of the avionic mux bus.
	Switch is in parallel with cage/uncage switch on fwd cockpit right throttle grip assembly.
NAV mode:	Used to cage or uncage the velocity vector on the HUD.
A/A mode:	
GUN:	Used to set the size of the stadiametric reticle in the backup or disturbed modes, and control range computations.
Sidewinder:	Controls sidewinder seeker pointing and/or lockon.
AIM-7/AIM-9 End to End tests	Starts end to end test when test adapters are installed on A/A weapon stations.
A/G mode:	
GUN:	In the CCIP mode, with the switch pressed and held the reticle is positioned at the 5000 foot range.
RKT:	In the CCIP mode the reticle is set at the 8000 foot range with the switch pressed and held.
WE:	Controls seeker head lockon, cage and uncage function.
MAV:	Used to blow the seeker head cover, cage and uncage the seeker head.
HARM:	In the TOO mode, commands the CLC to pass hand off information to the missile about the selected priority target.
throttle designator control (TDC)	Force transducer/momentary pushbutton switch used by aircraft sensor systems for positioning and lockon.
	Switch is in parallel with throttle designator control on fwd cockpit right throttle grip assembly.
	Provides positioning and lockon of A/G weapons with television displays.

28. **LDG GEAR Control (12A-H008).** The LDG GEAR control is on the LH vertical console panel. See WP014 00 for LDG Gear control location. Table 11 identifies switches and functions of controls used by the SMS.

29. **SNSR Pod Control Box Panel Assembly (52A-J080).** The SNSR pod control box panel assembly is on the right console. See WP014 00 for panel-location. Table 12 identifies switches and functions of control on SNSR pod control box panel assembly used by the SMS.

Table 11. LDG GEAR Control (12A-H008)

Control/Indicator	Function
LDG GEAR control handle	Lever switch which controls raising and lowering the aircraft landing gear. Switch also provides switch logic for aircraft systems which require gear up/ gear down status.
DN	On 161353 THRU 161987 BEFORE F/A-18 AFC 37, disables electrical fuzing function by disabling Electrical Fuzing Power Supply PP-6419/AWW-4(V). Disables the MASTER/ARM function to disable weapon release, launch or fire signals. Disables emergency jettison with right main landing gear weight on wheels.
UP	On 161353 THRU 161987 BEFORE F/A-18 AFC 37, enables Electrical Fuzing Power Supply PP-6419/AWW-4(V) when all gear up and locked relay interlock is satisfied. Enables weapon arm function when right main landing gear is weight off wheels. Enables emergency jettison function.

Table 12. SNSR Pod Control Box Panel Assembly (52A-J080)

Control/Indicator	Function
RADAR switch	Four position rotary switch used to turn on [1] Radar Set AN/APG-65. [2] Radar Set AN/APG-73. Switch also provides switch logic for aircraft systems which require radar power switch status.
STBY/OPR/EMERG	Provides 28vdc to armament computer to enable AIM-7 prelaunch and launch circuits.

LEGEND

[1] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.
[2] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

30. **Intercommunication Amplifier-Control AM-6979/A, AM-7360/A or AM-7539/A (AFTER AFC 253 OR 292) (76A-H009).** The intercommunication amplifier-control is on the left console. See WP014 00 for control location. Table 13 identifies switches and functions of controls used by the SMS.

31. **Volume Control Panel Assembly (76A-K032).** On F/A-18B, the volume control panel assembly is on the rear left console. See WP014 00 for panel location. Table 14 identifies switches and functions of controls used by the SMS.

32. **ECM Control Panel Assembly (52A-H087).** The ECM control panel assembly is on the pedestal panel. See WP014 00 for panel location. Table 15 identifies switches and function of controls used by the SMS.

Table 13. Intercommunication Amplifier-Control AM-6979/A, AM-7360/A or AM-7539/A (AFTER AFC 253 OR 292) (76A-H009)

Control/Indicator	Function
WPN VOL control	Stacked potentiometer with dual function inside/outside control. The inside control WPN VOL, controls the volume of the AIM-9 sidewinder tone to the pilot's intercom system. Signal is an output of the armament computer when an AIM-9 is selected and seeker head is locked on to an infrared target.

Table 14. Volume Control Panel Assembly (76A-K032)

Control/Indicator	Function
WPN VOL control	Stacked potentiometer with dual function inside/outside control. On 161354 THRU 161360 - the outside control WPN VOL, controls the volume of the AIM-9 sidewinder tone to the instructor's intercom system. Signal is an armament computer output when an AIM-9 is selected and seeker head is locked on to an infrared target. On 161704 AND UP - the inside control WPN VOL, controls the volume of the AIM-9 sidewinder tone to the instructor's intercom system.

Table 15. ECM Control Panel Assembly (52A-H087)

Control/Indicator	Function
AUX REL switch	Two position lever locked switch which controls auxiliary release of stores, launchers or racks on the five pylon weapon stations. Auxiliary release is used to release a hung weapon when the weapon primary release signal failed to start a normal release and selective jettison failed.
NORM	Disables auxiliary release function.
ENABLE	Provides a discrete ground input to the armament computer. Auxiliary release enables the auxiliary cartridge in the pylon BRU-32 to fire. Firing the auxiliary breech cartridge starts a gravity release of stores, racks or launchers on the pylon BRU-32.

33. **Map Gain Control Panel Assembly (52A-J076).** The map gain control panel assembly is on the right main instrument panel. See WP014 00 for panel location. Table 16 identifies the switches and function of controls used by the SMS.

34. **GND PWR Control Panel Assembly (1A-H004).** The GND PWR control panel assembly is on the left console. See WP014 00 for panel location. Table 17 identifies the switches and functions of controls used by the SMS.

Table 16. Map Gain Control Panel Assembly (52A-J076)

Control/Indicator	Function
IR COOL switch	Three position toggle switch which controls coolant to the AIM-9 seeker head.
OFF	Disables coolant to the seeker heads unless aircraft is weight off wheels, MASTER switch is at ARM and a weapon station is selected with an AIM-9 loaded.
NORM	Enables coolant to all seeker heads when weight is off wheels.
ORIDE	Enables coolant to all seeker heads as long as power is applied to the aircraft.

Table 17. GND PWR Control Panel Assembly (1A-H004)

Control/Indicator	Function
EXT PWR switch	Three position toggle switch used for application of external electrical power to the aircraft.
OFF	Disables external electrical power application to aircraft.
NORM (held by solenoid)	Applies external electrical power to aircraft.
RESET (momentary contacts)	Resets external electrical monitoring circuit when external electrical power drops off the aircraft as a result of a temporary overload or out of tolerance condition.
3 switch	Three position toggle switch used to control power to avionic systems during ground operations.
B ON (held by solenoid)	Enables power to SMS, forward looking infrared system, and laser detector tracker system.
AUTO	Disables power to SMS, forward looking infrared system, and laser detector tracker system.

35. **Nose Wheelwell Maintenance Panel.** The nose wheelwell maintenance panel is on left side of nose wheelwell. See WP014 00 for panel location. Table 18 identifies switches and functions of controls used by the SMS.

36. **EMERG JETT Panel Assembly (61A-K237).** On F/A-18B, the EMERG JETT panel assembly is on the rear main instrument panel. See WP014 00 for panel location. Table 19 identifies the switch and function on the EMERG JETT panel assembly used by the SMS.

37. **MC/HYD ISOL PANEL ASSEMBLY (52A-H081)**. The MC/HYD ISOL panel assembly is located on the left console. See WP014 00 for panel location. Table 20 identifies the switch and function on the MC/HYD ISOL panel assembly used by the SMS.

Table 18. Nose Wheelwell Maintenance Panel

Control/Indicator	Function
ARMAMENT OVERRIDE switch	Single throw, double pole switch which is held in OVERRIDE by a holding solenoid. Switch remains at OVERRIDE until power is removed, manually set to off, or MASTER switch is set to SAFE.
OVERRIDE	When set to OVERRIDE, LDG GEAR control (handle) up and right main landing gear weight off wheels interlocks are removed from the master arm circuit. Provides a discrete 28vdc to the armament computer.
OFF (deenergized)	Disables master arm circuit until LDG GEAR control handle is up and right main landing gear is weight off wheels.

Table 19. EMERG JETT Panel Assembly (61A-K237)

Control/Indicator	Function
EMERG JETT switch	Momentary pushbutton switch. When pressed, jettisons all stores loaded on the BRU-32 on the five pylon weapon stations. Initiates periodic BIT of all weapon stations.
PUSH TO JETT	Provides a discrete input to armament computer. Armament computer provides an emergency jettison discrete output to the five pylon weapon station encoder-decoders.

Table 20. MC/HYD ISOL PANEL ASSEMBLY (52A-H081)

Control/Indicator	Function
MC switch	1 OFF - removes power from Digital Data Computer No. 1. 2 OFF - removes power from Digital Data Computer No. 2. NORM - applies power to both Digital Data Computers. When power is removed, switch automatically returns to NORM.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - CONTROLS AND INDICATORS SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

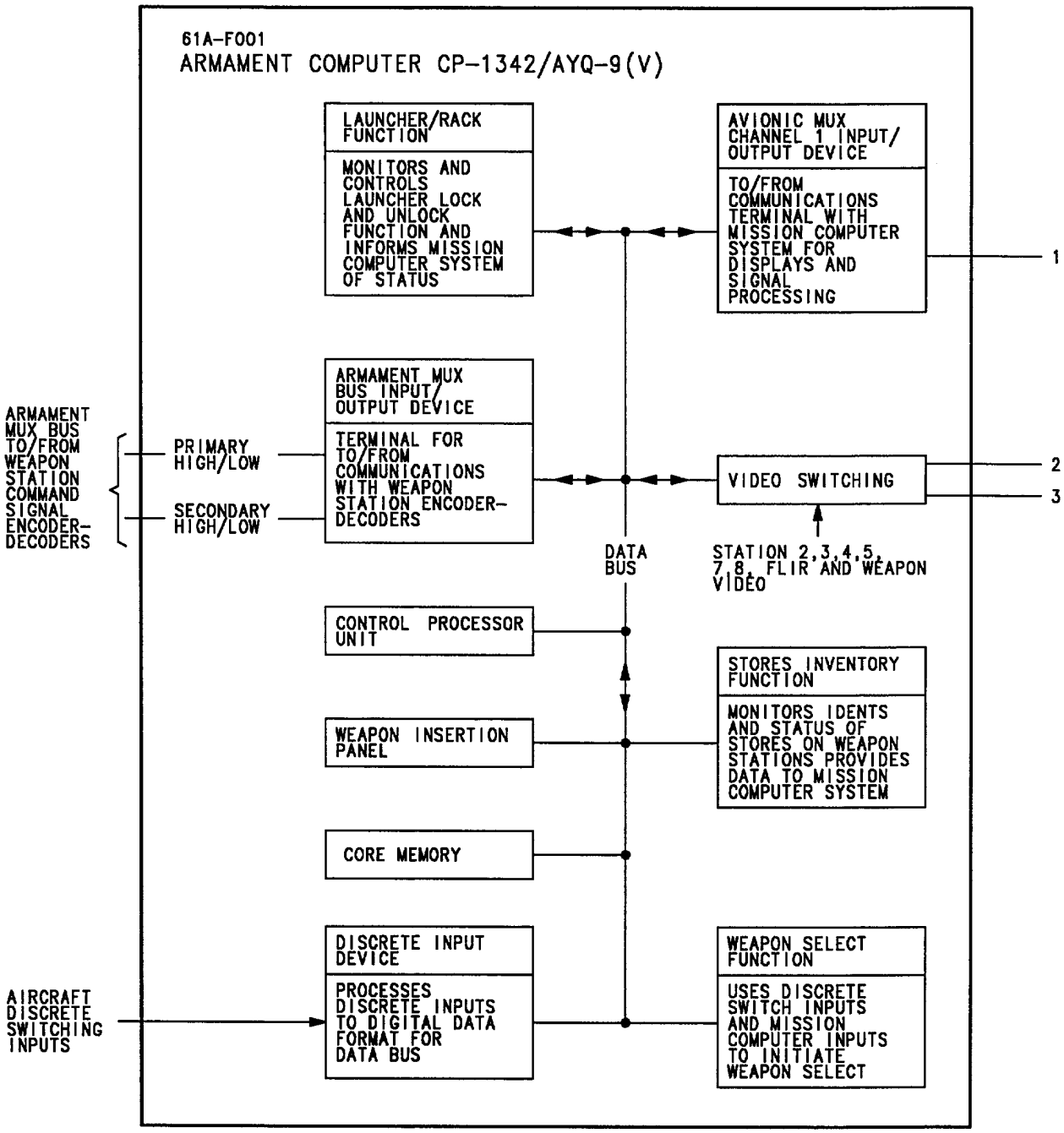
Subject	Page No.
Introduction	1
Stores Management System Discrete Switching Simplified Schematic, Figure 2	5
Stores Management System Indicators Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 037	16 Feb 84	Deletion of Landing Gear Handle Logic from AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 27	-	Leading Edge Flap/Control Stick Changes (ECP MDA-F18-00044)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 48	-	Automatic AC BUS Isolation, Incorporation of (ECP MDA-F18-00121)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The schematics in this work package are provided to support the data in WP012 00.



01300101

Figure 1. Stores Management System Indicators Simplified Schematic (Sheet 1)

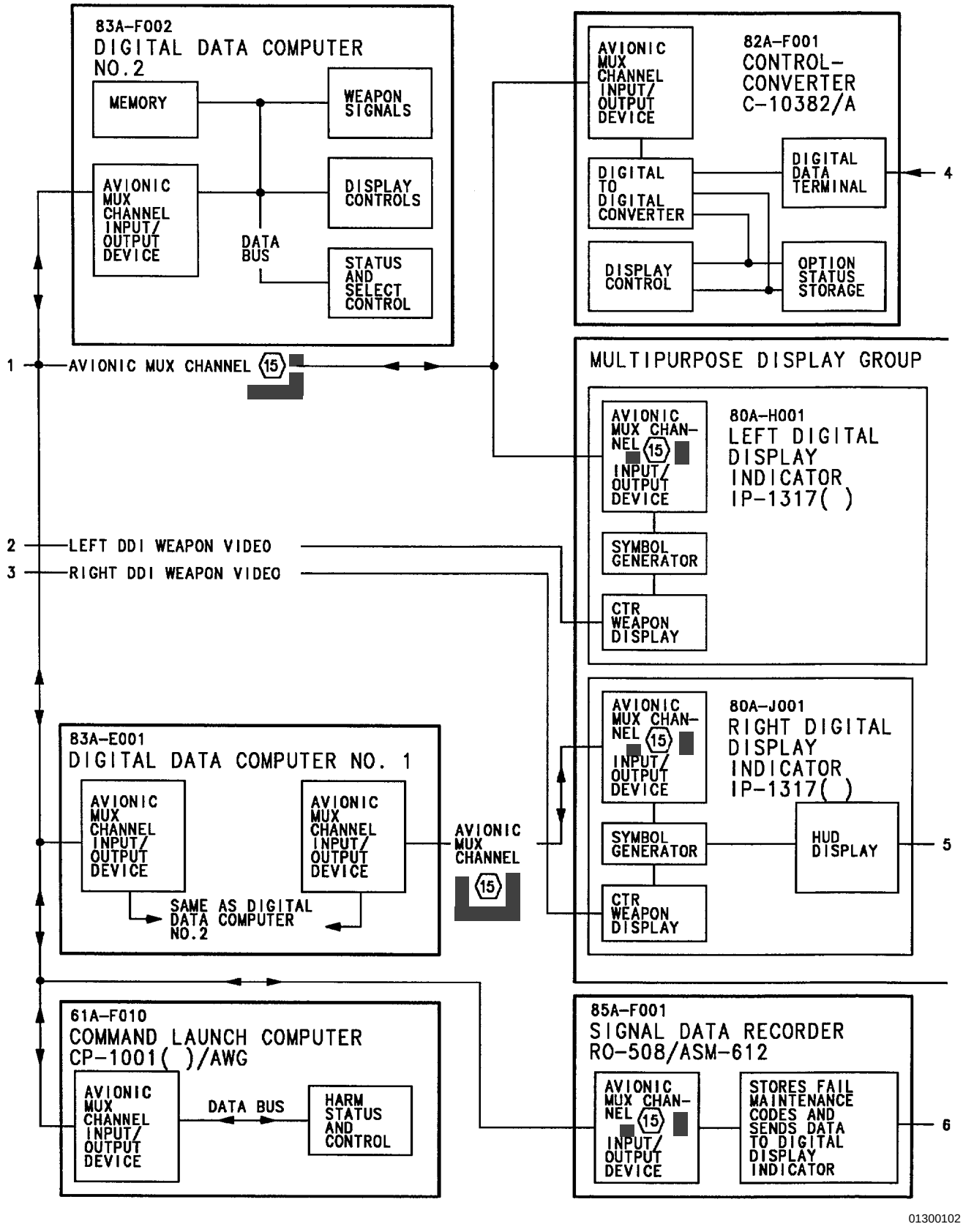


Figure 1. Stores Management System Indicators Simplified Schematic (Sheet 2)

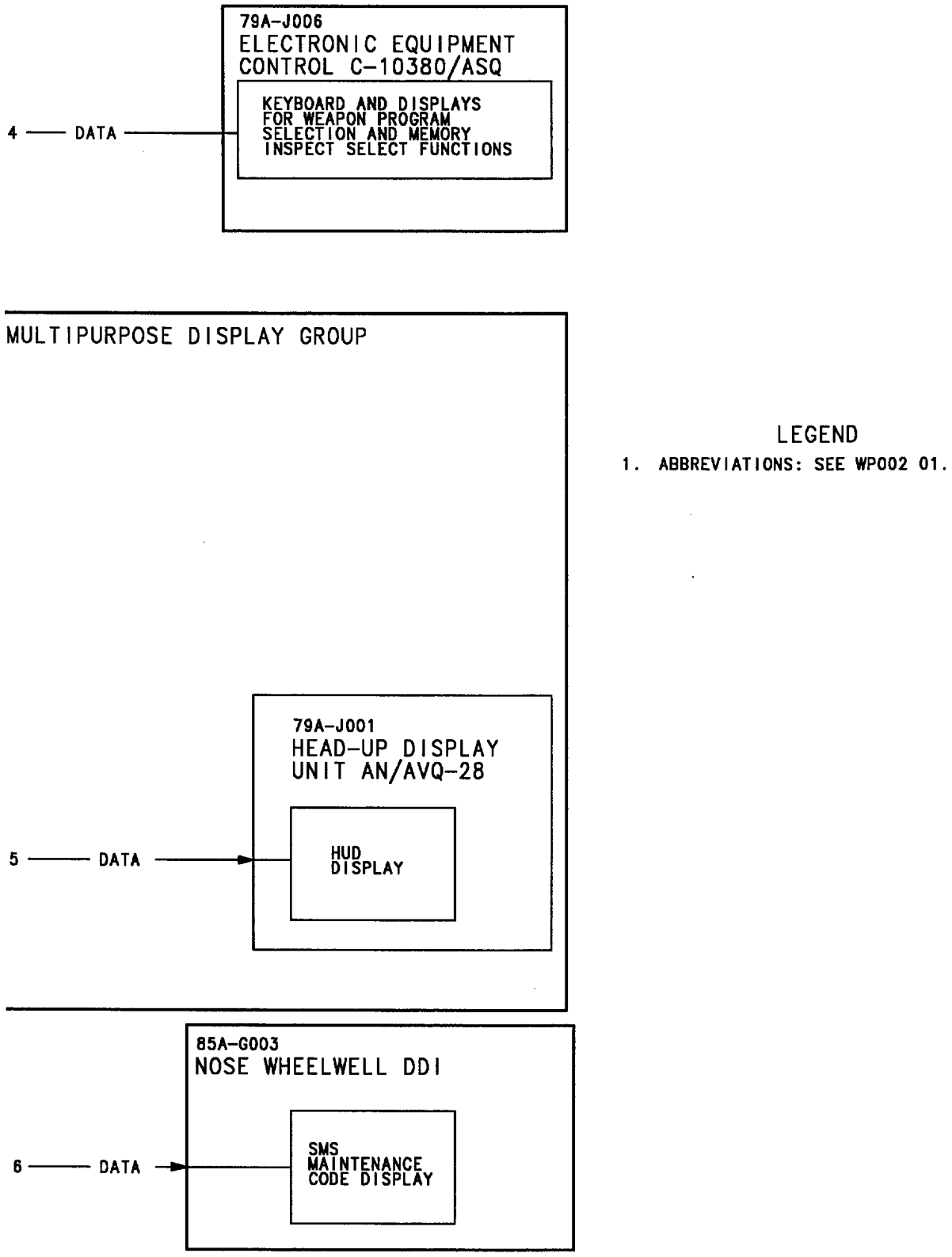


Figure 1. Stores Management System Indicators Simplified Schematic (Sheet 3)

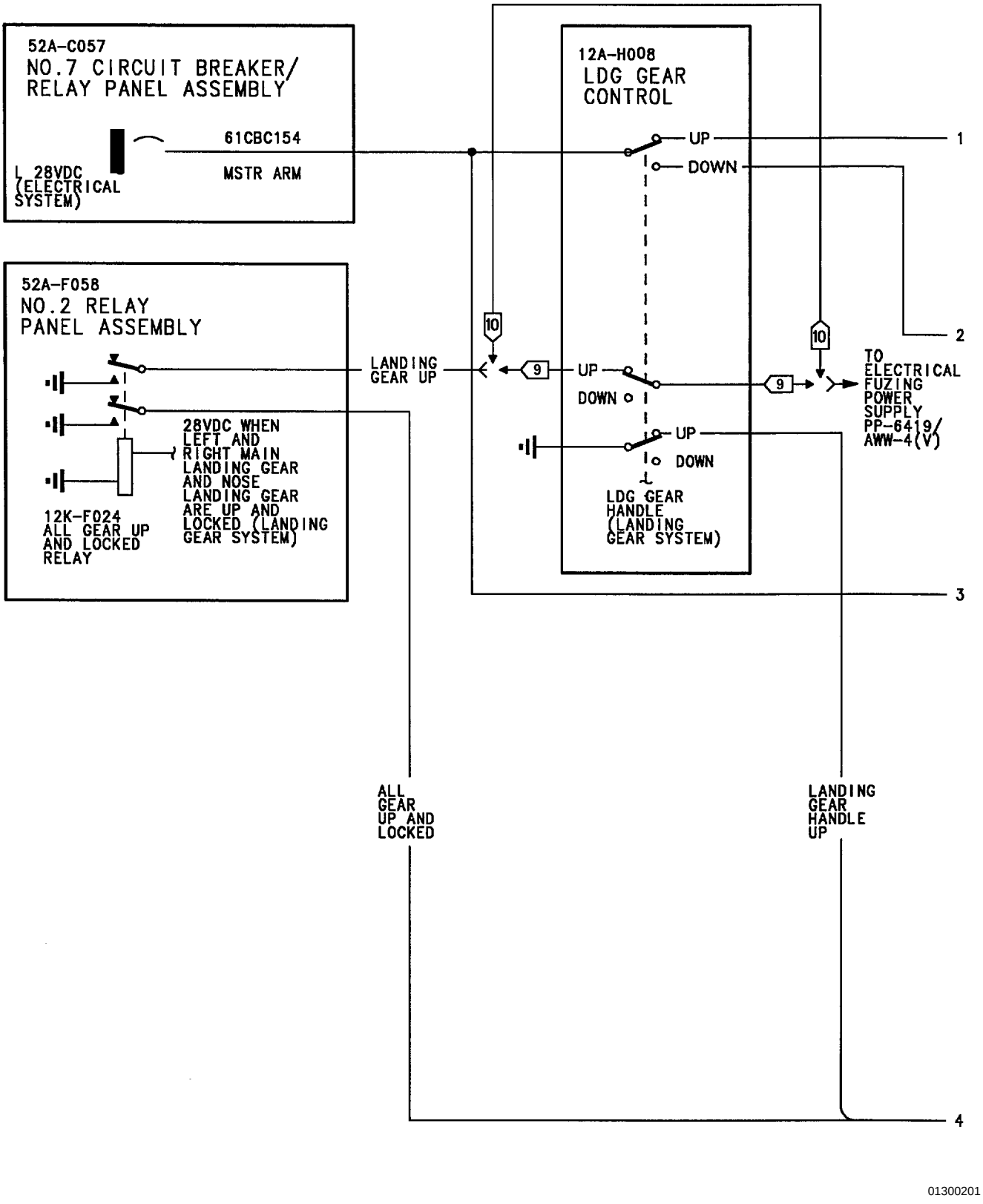


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 1)

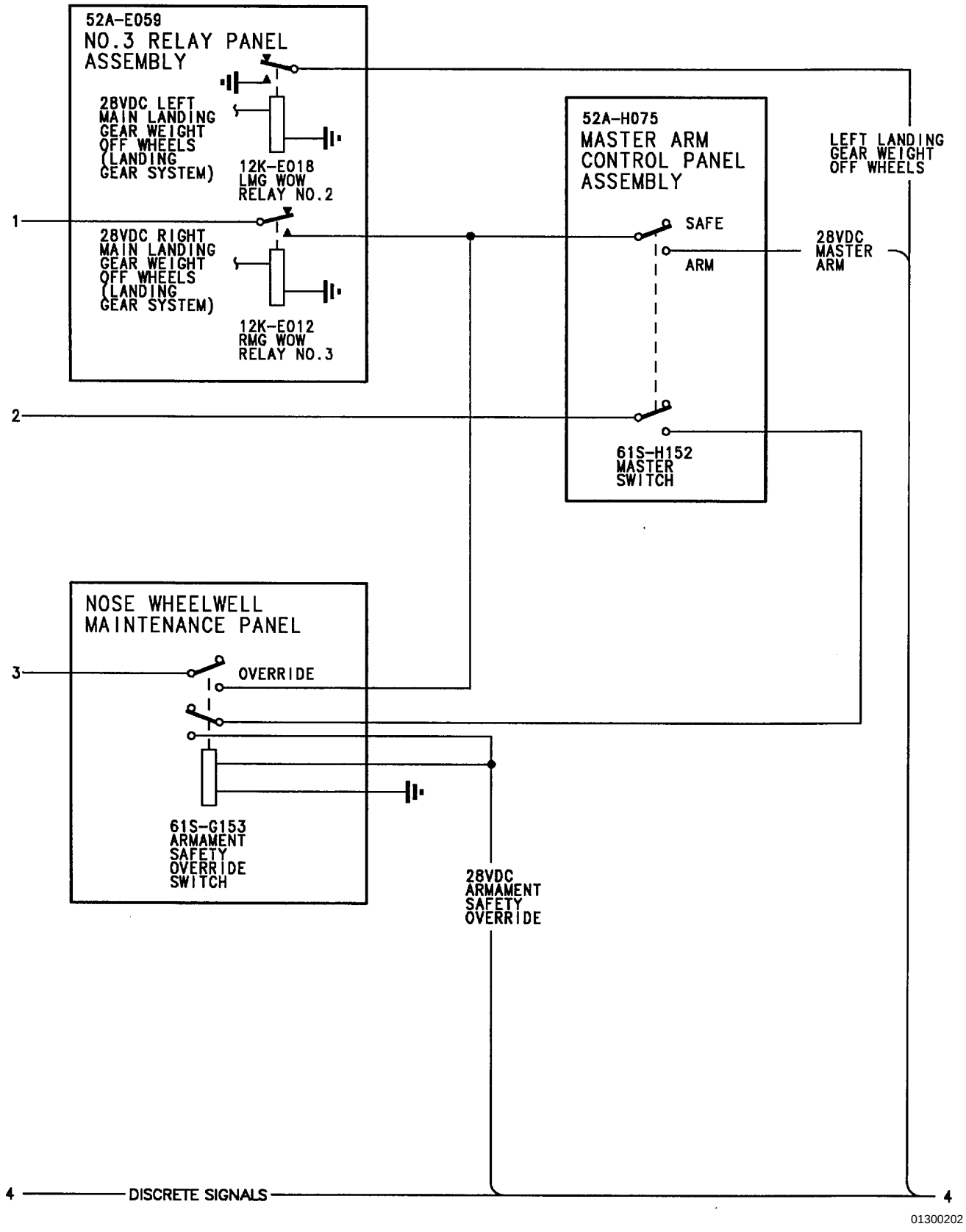
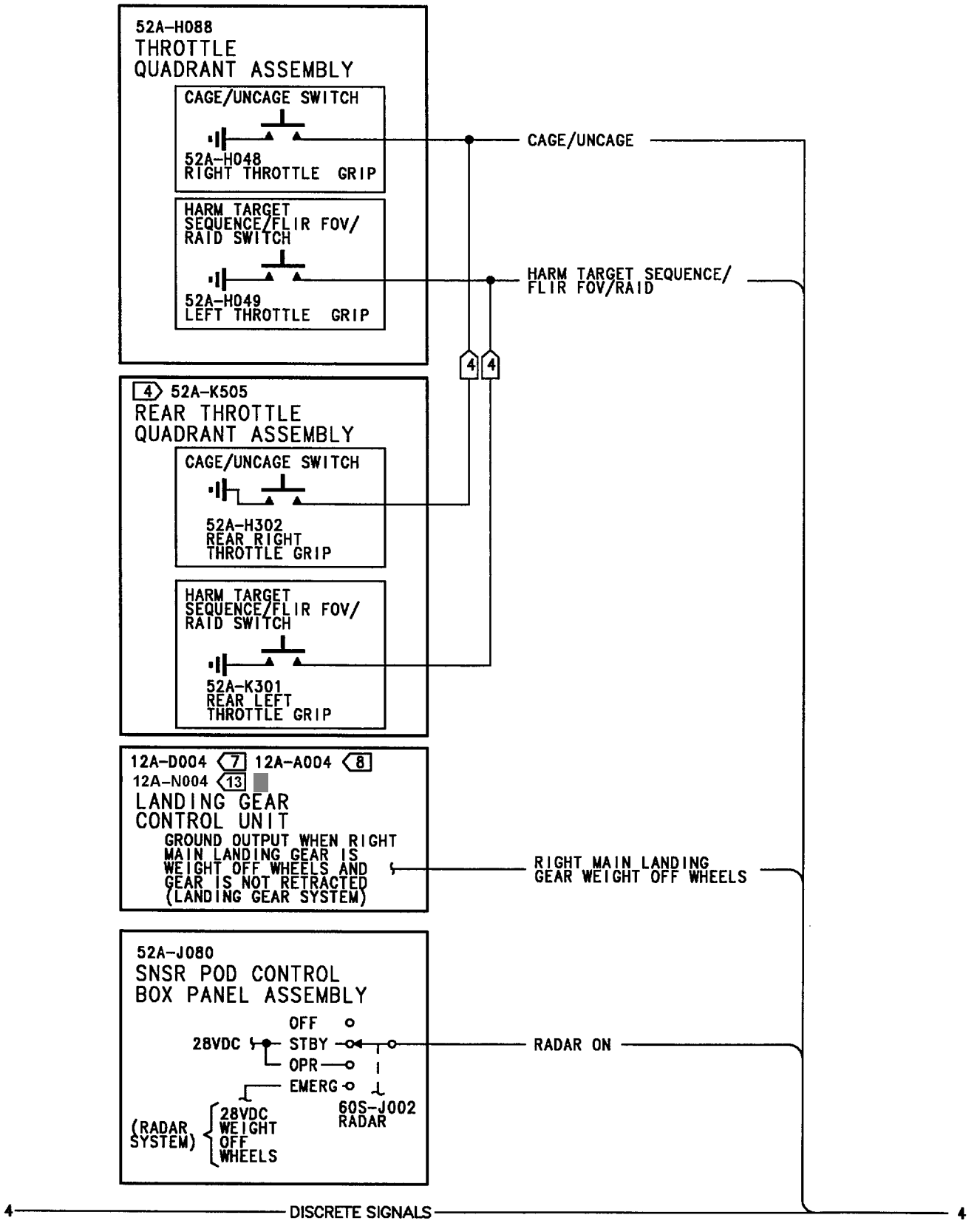


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 2)



01300203

Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 3)

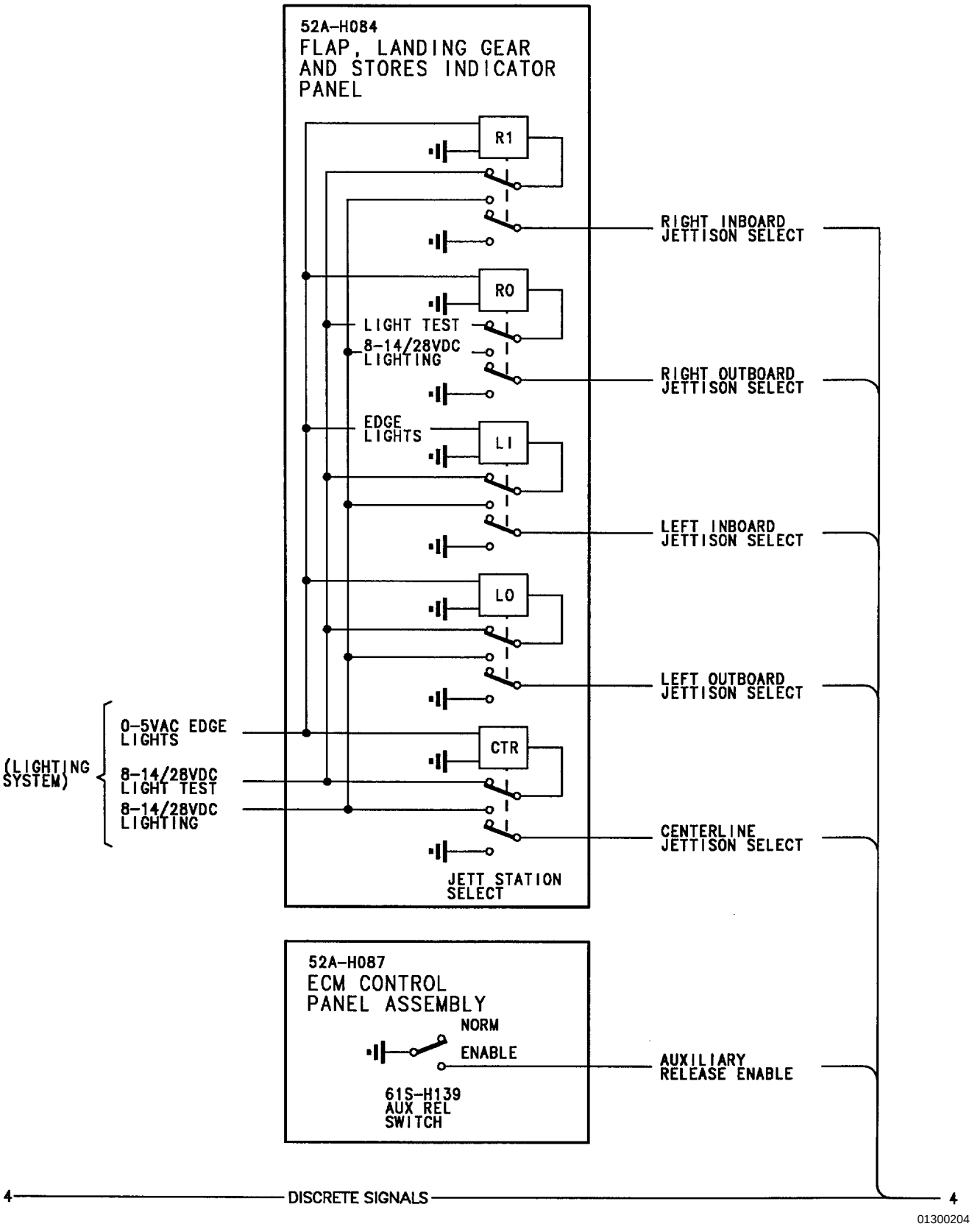


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 4)

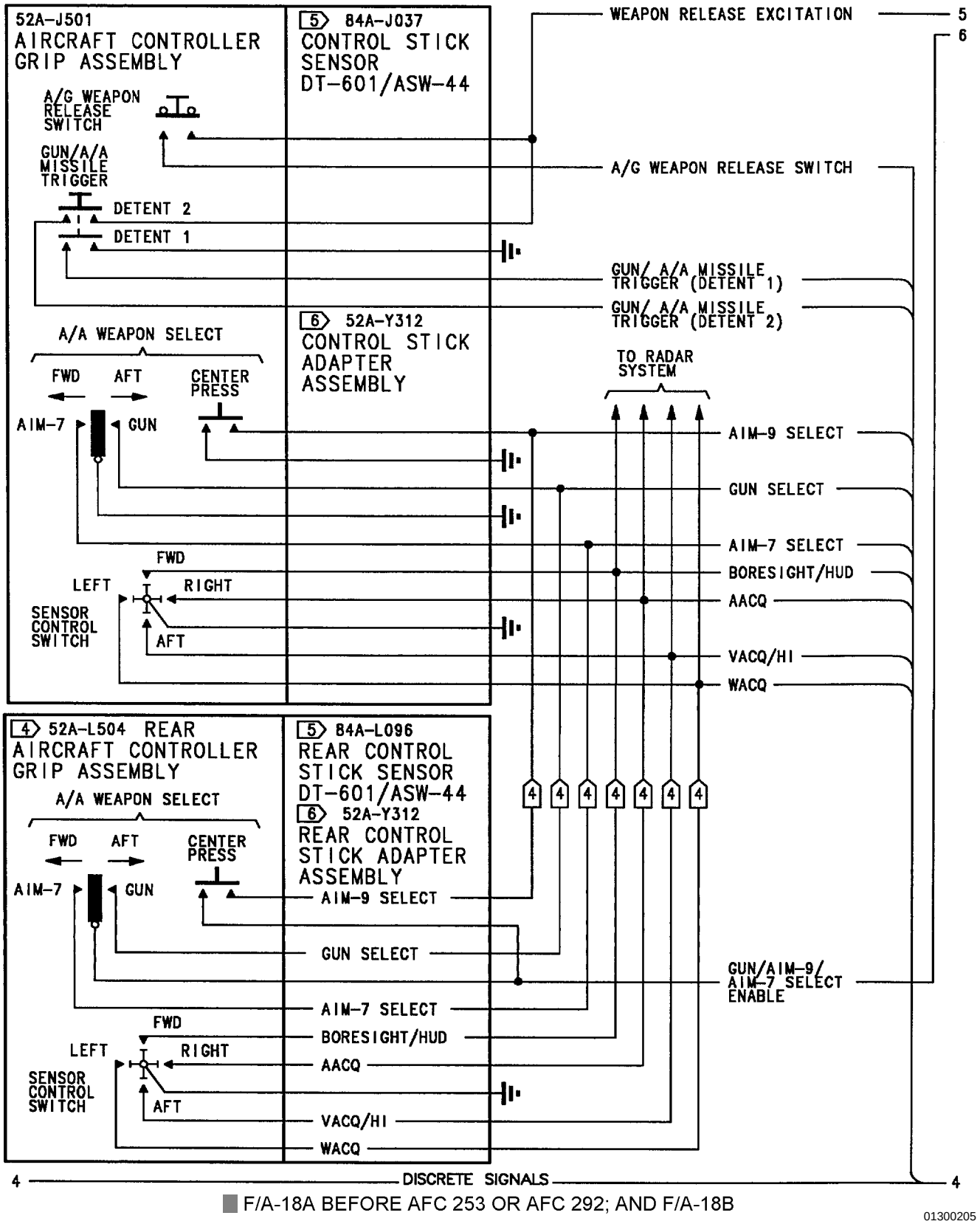
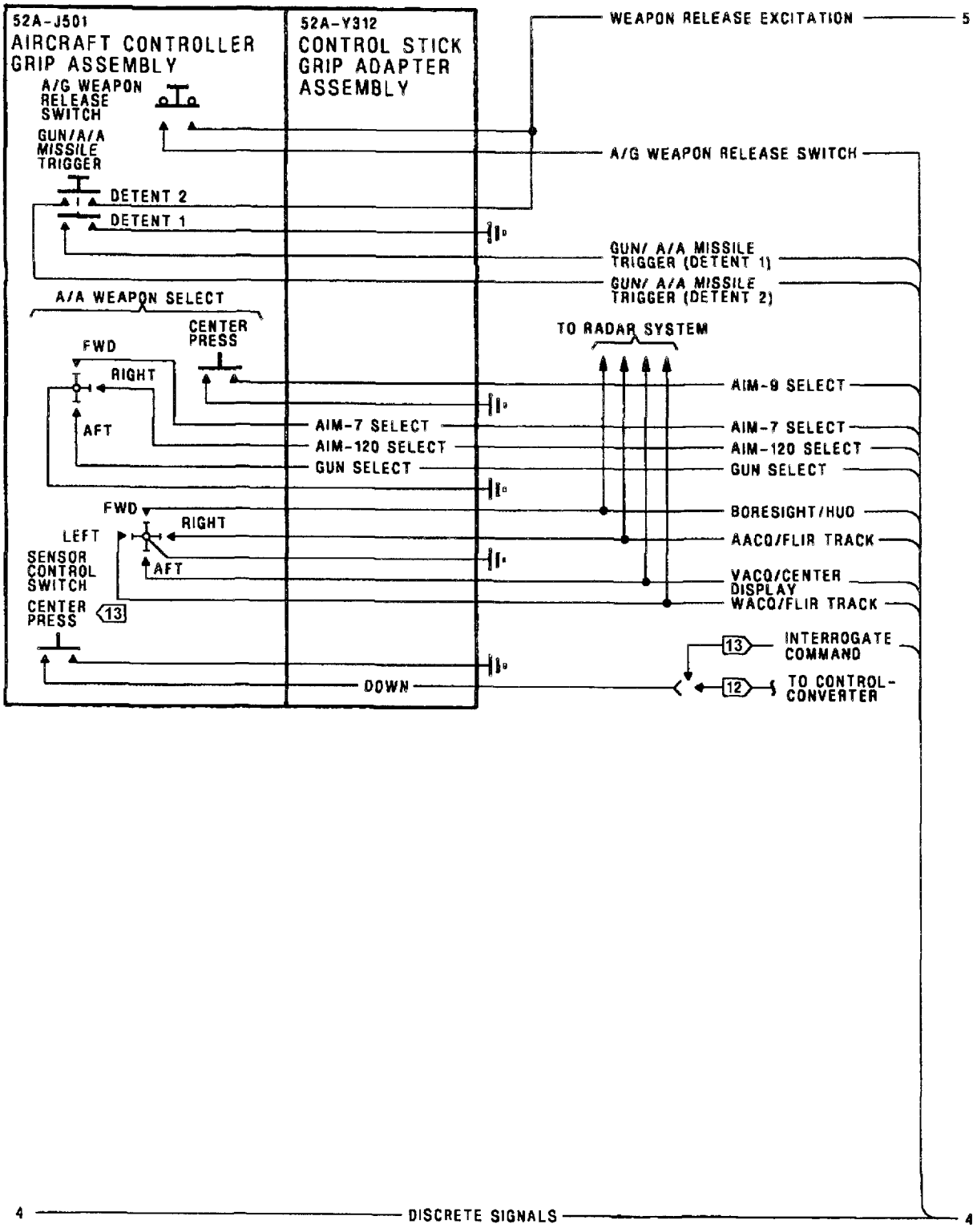


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 5)



F/A-18A AFTER AFC 253 OR AFC 292

01300206

Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 6)

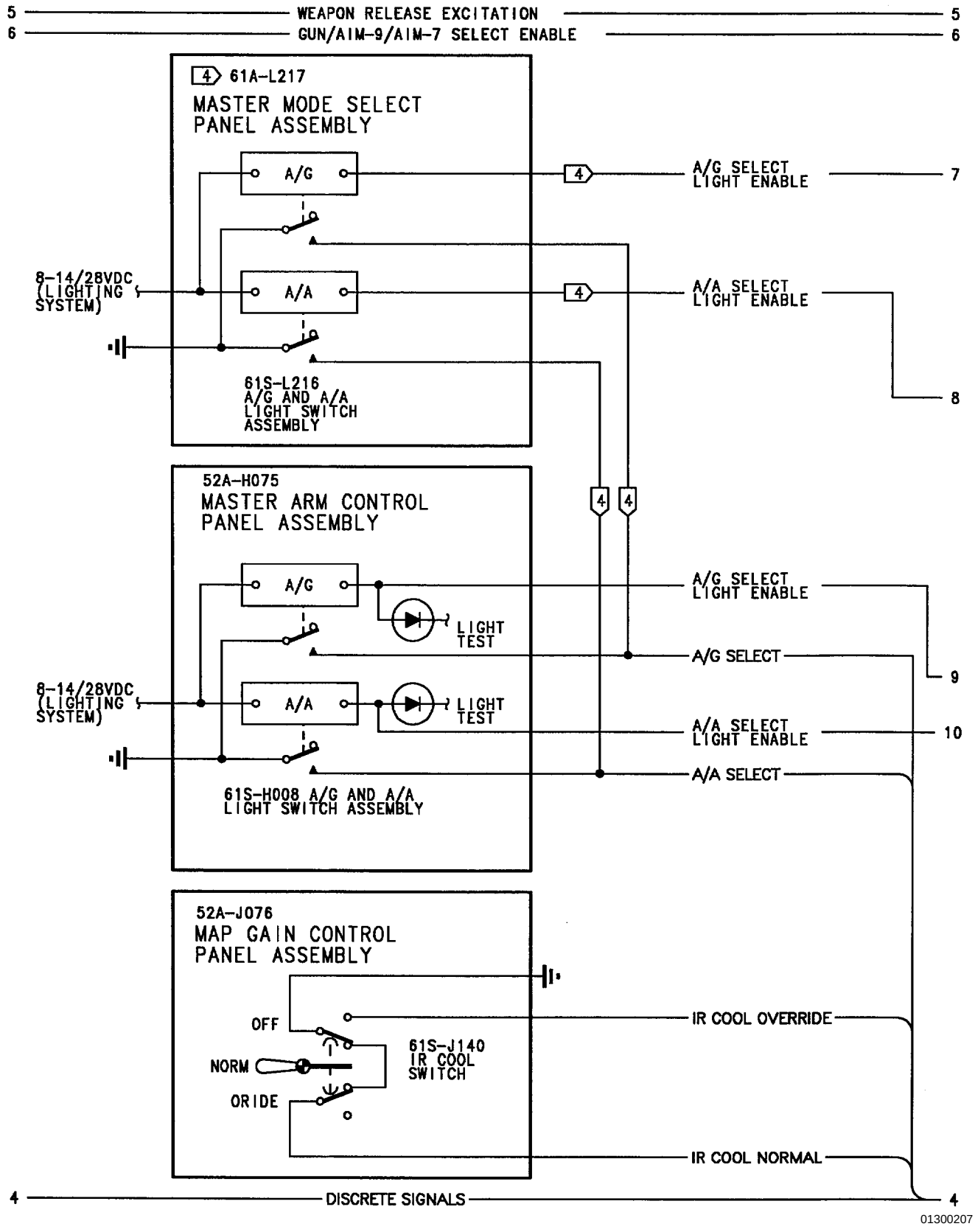


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 7)

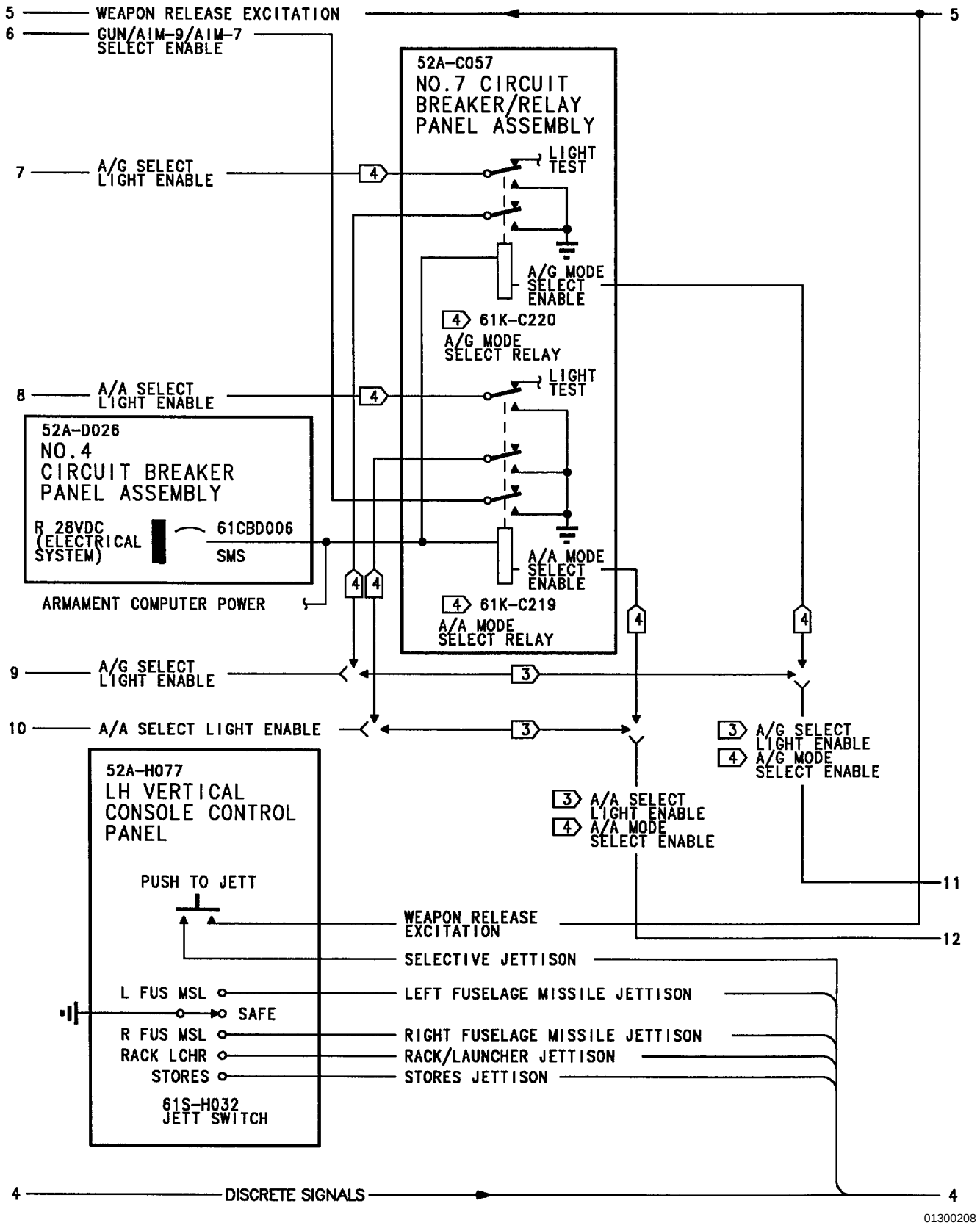


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 8)

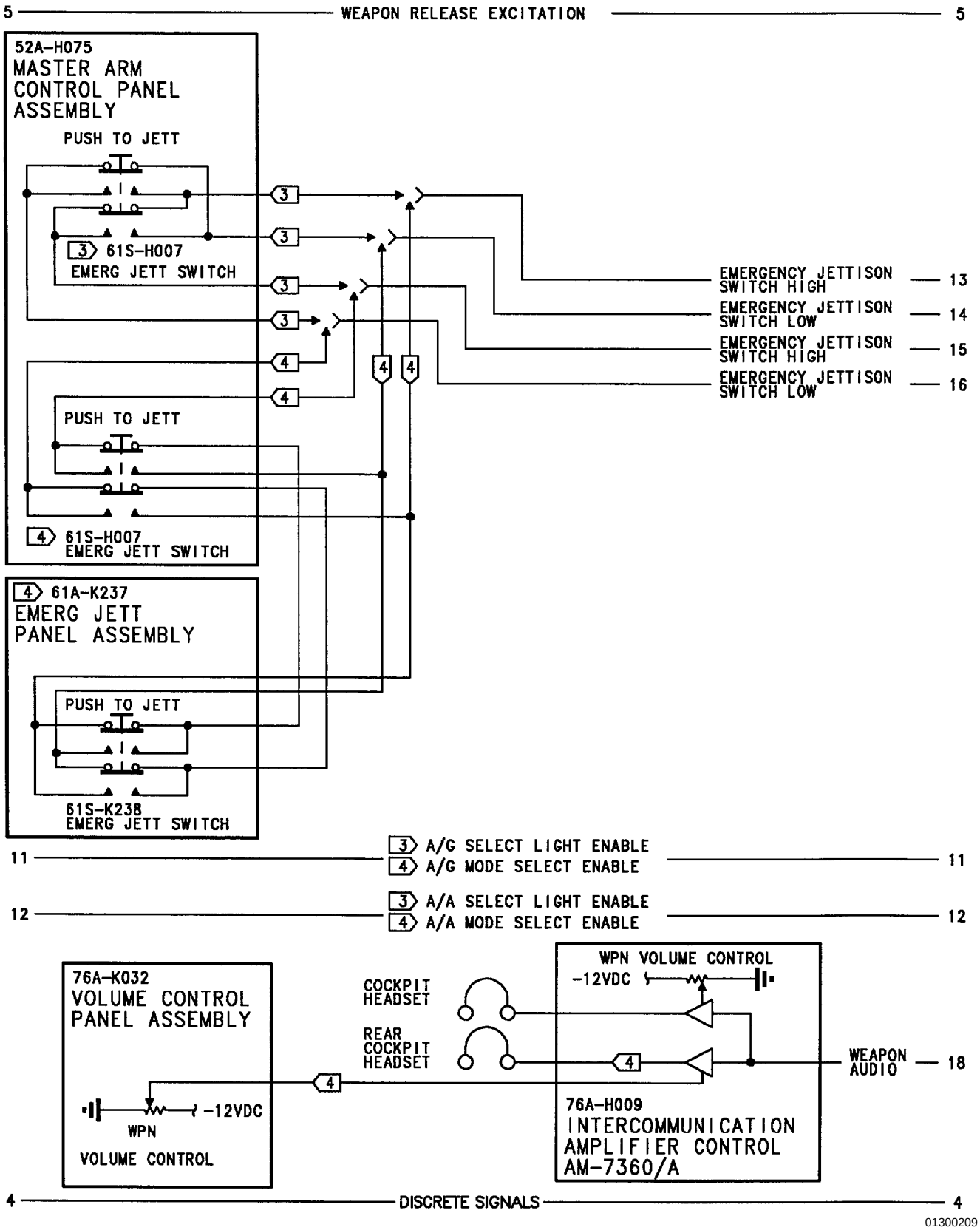


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 9)

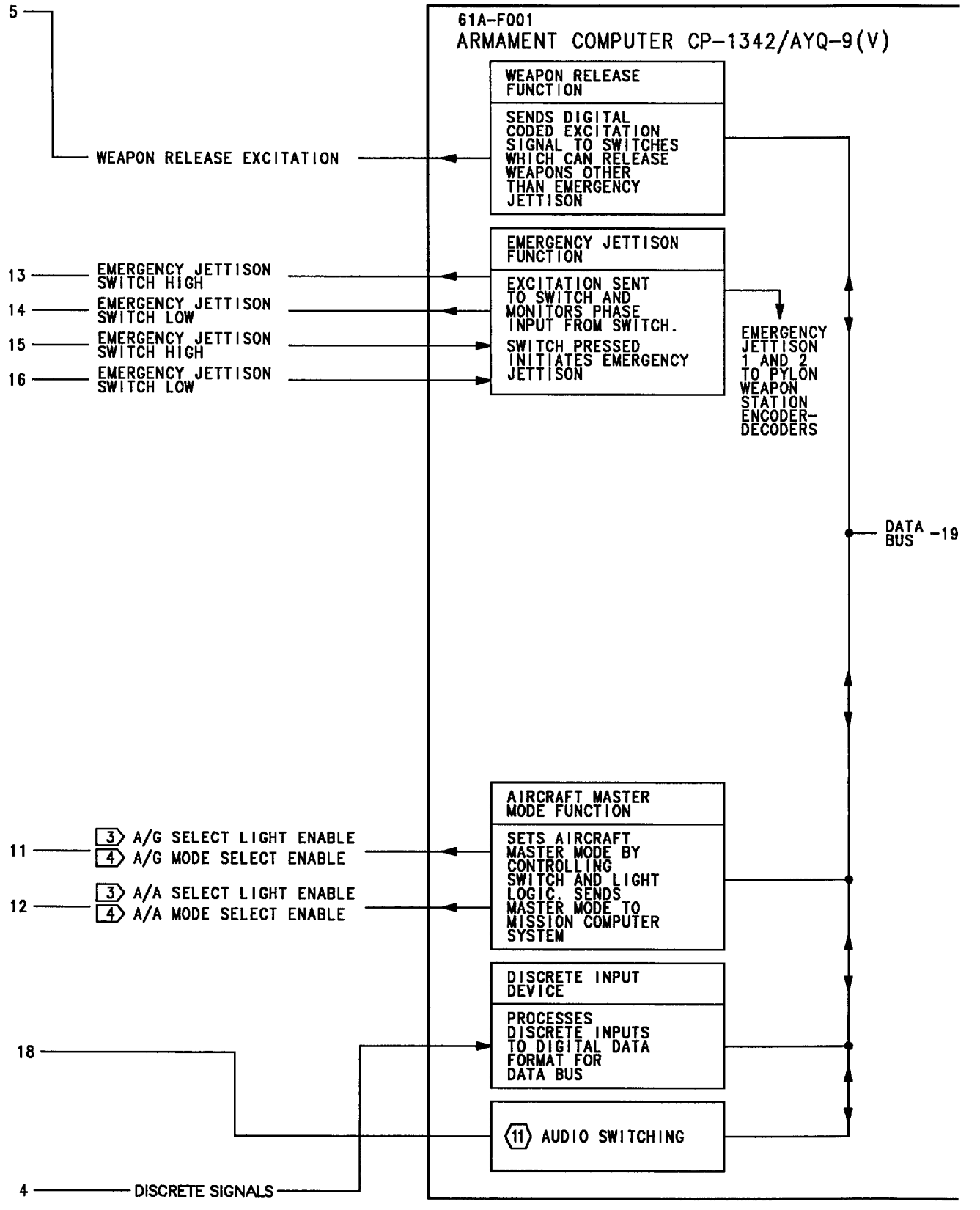


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 10)

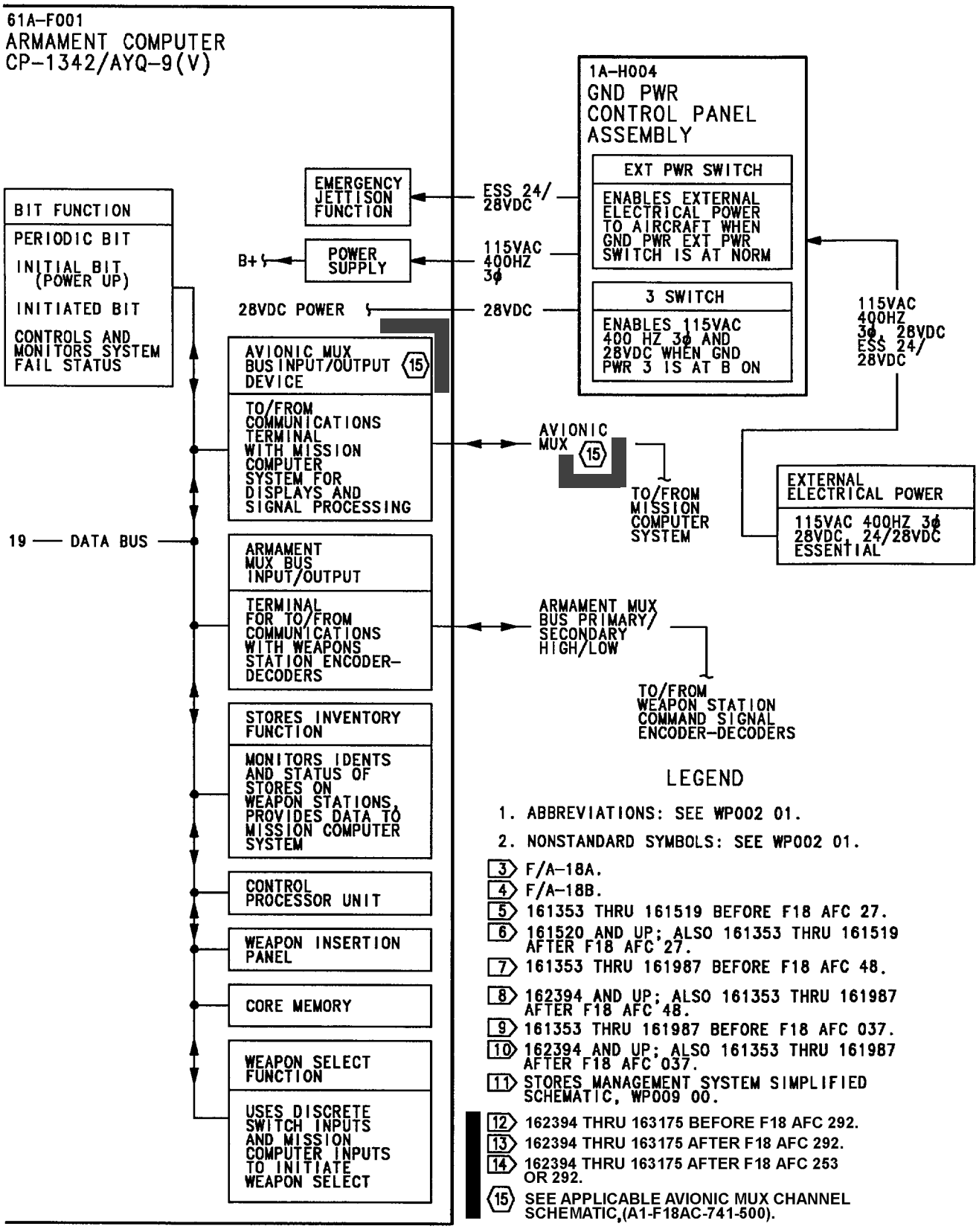


Figure 2. Stores Management System Discrete Switching Simplified Schematic (Sheet 11)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

LOCATOR

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Introduction	1
Stores Management System Locator, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AAC 774	31 Dec 83	F/A-18 Modification of Weapons Control System Guided Missile Launcher LAU-116( ) Aft Missile Restraint Mechanism, Latch, (ECP-MDA-F/A-18-0159)	1 Nov 84	-
F/A-18 AFC 19	18 Oct 85	Shoot Light Power Supply Second Connector, Addition of (ECP MDA-F/A-18-00052)	1 Nov 84	-
F/A-18 AFC 27	-	Leading Edge Flap/Control Stick Changes (ECP MDA-F/A-18-00044)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 48	-	Automatic AC BUS Isolation, Incorporation of (ECP MDA-F18-00121)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The component locator in this package supports the stores management system principles of operation.

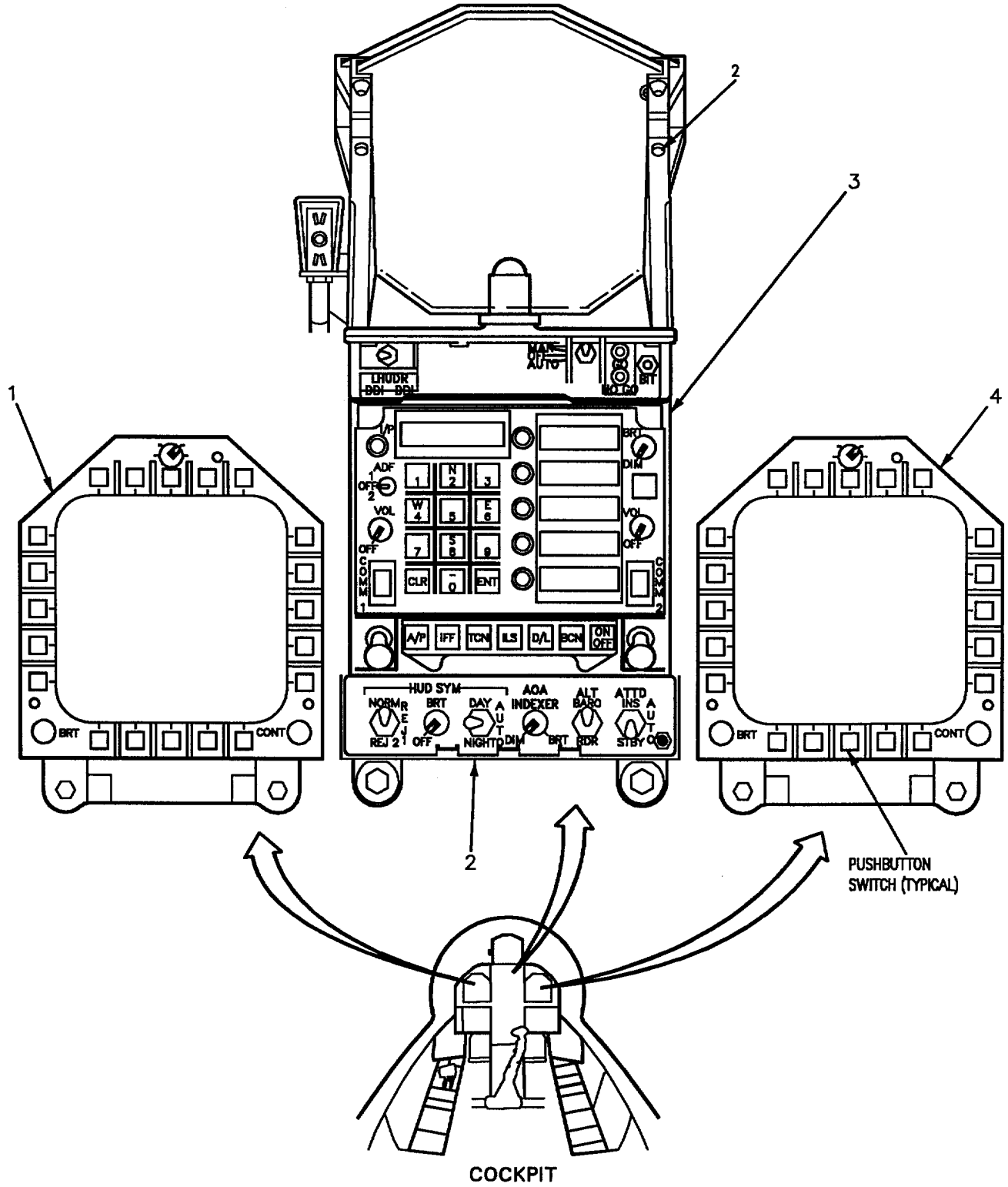
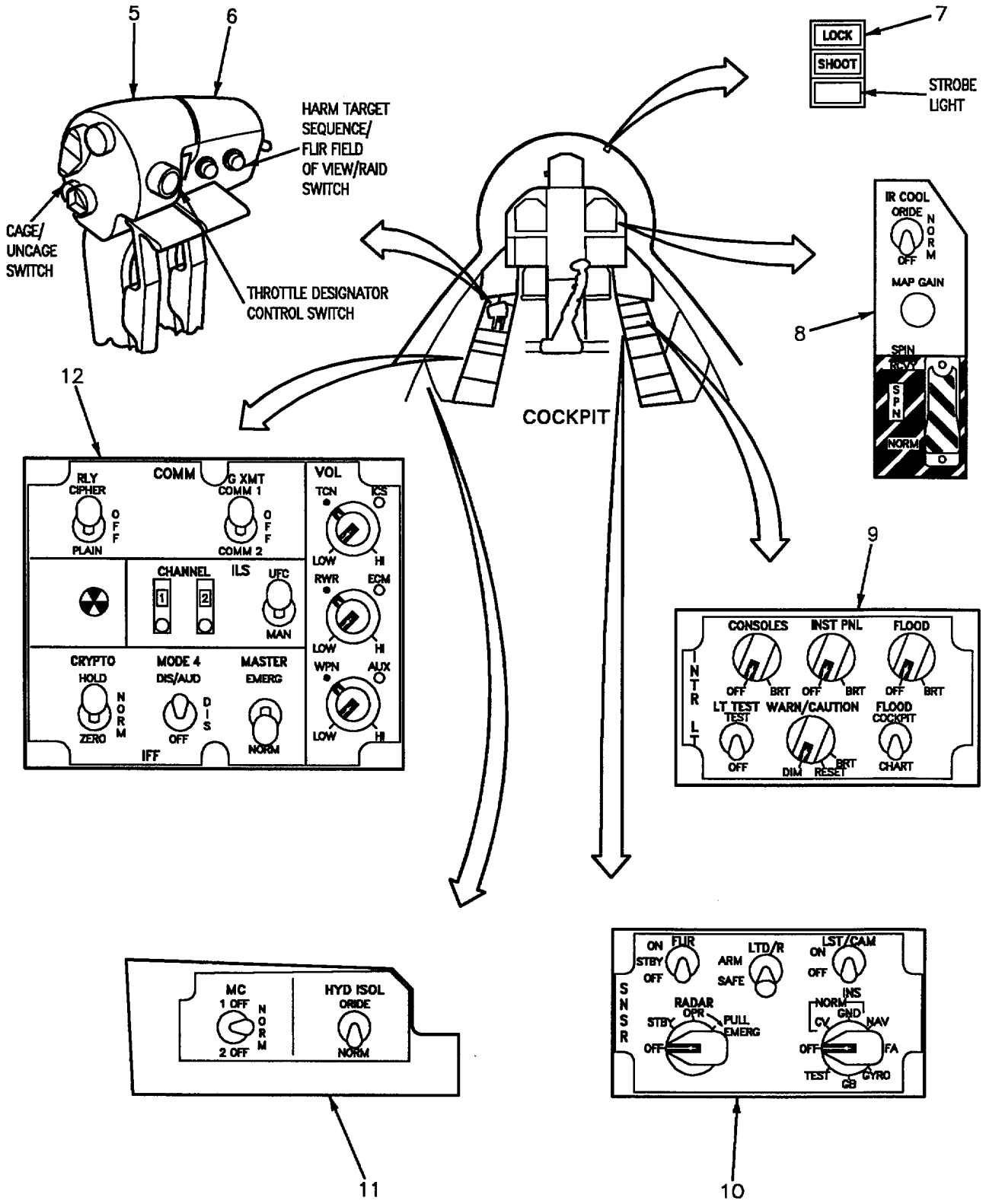
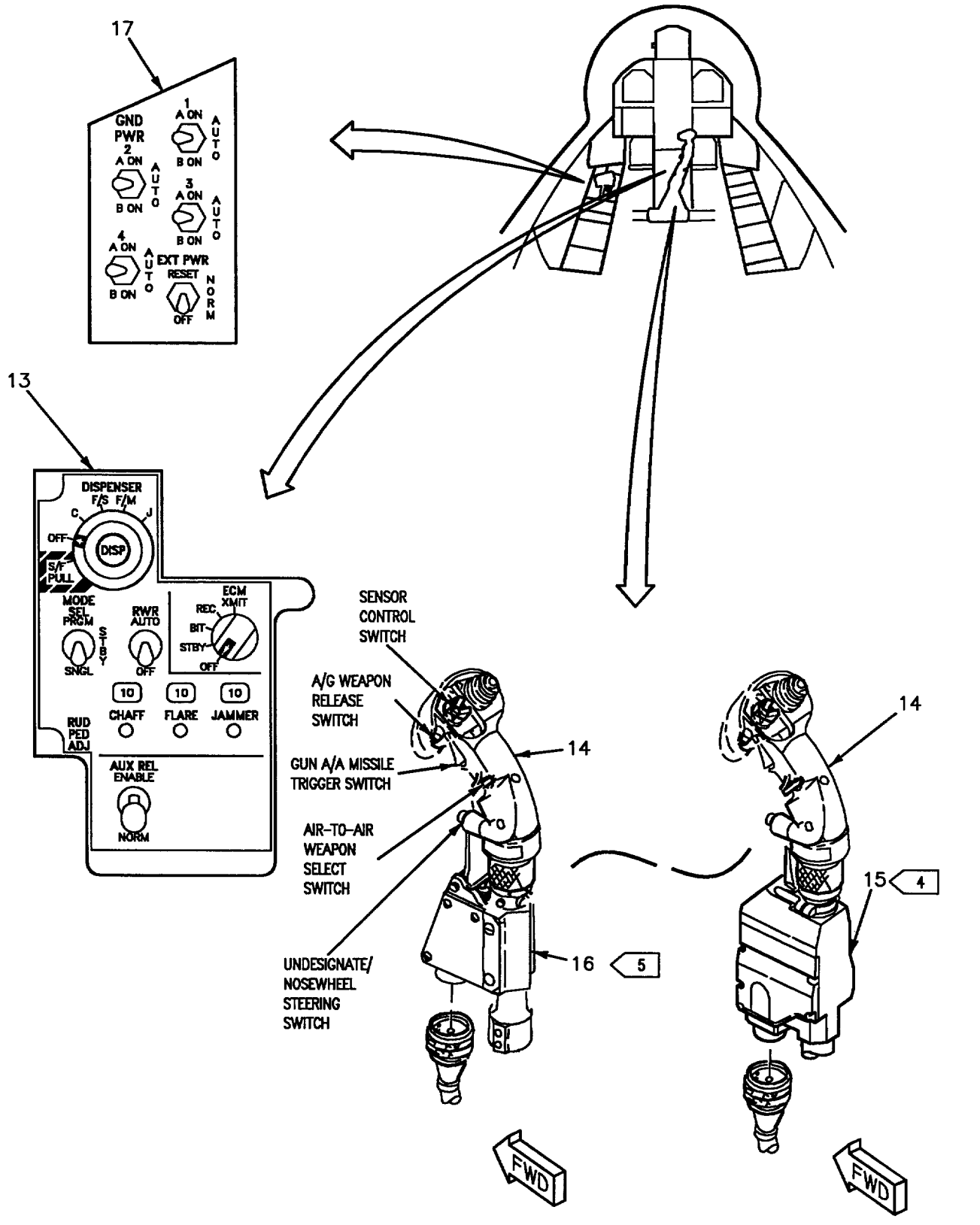


Figure 1. Stores Management System Locator (Sheet 1)



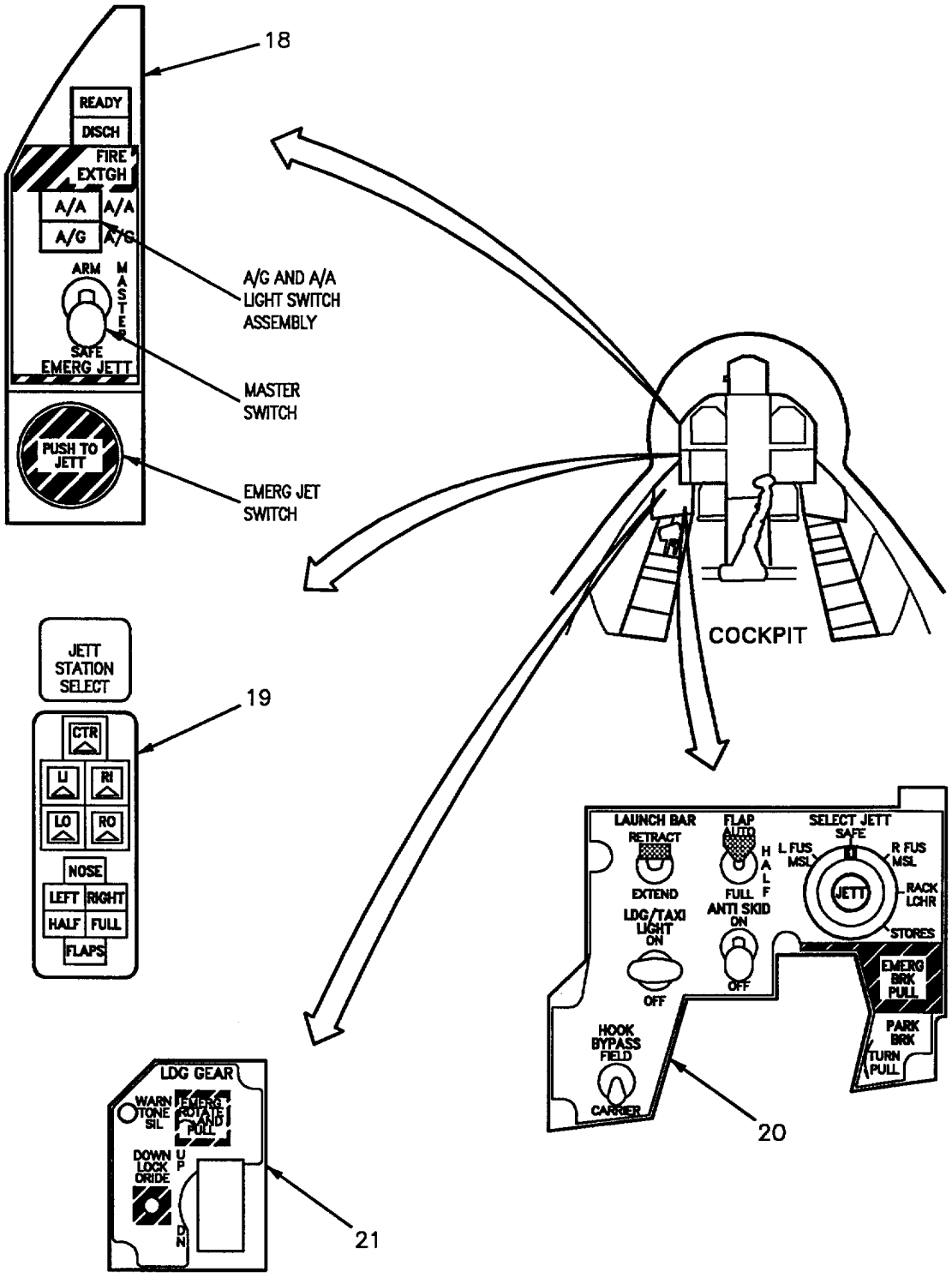
01400102

Figure 1. Stores Management System Locator (Sheet 2)



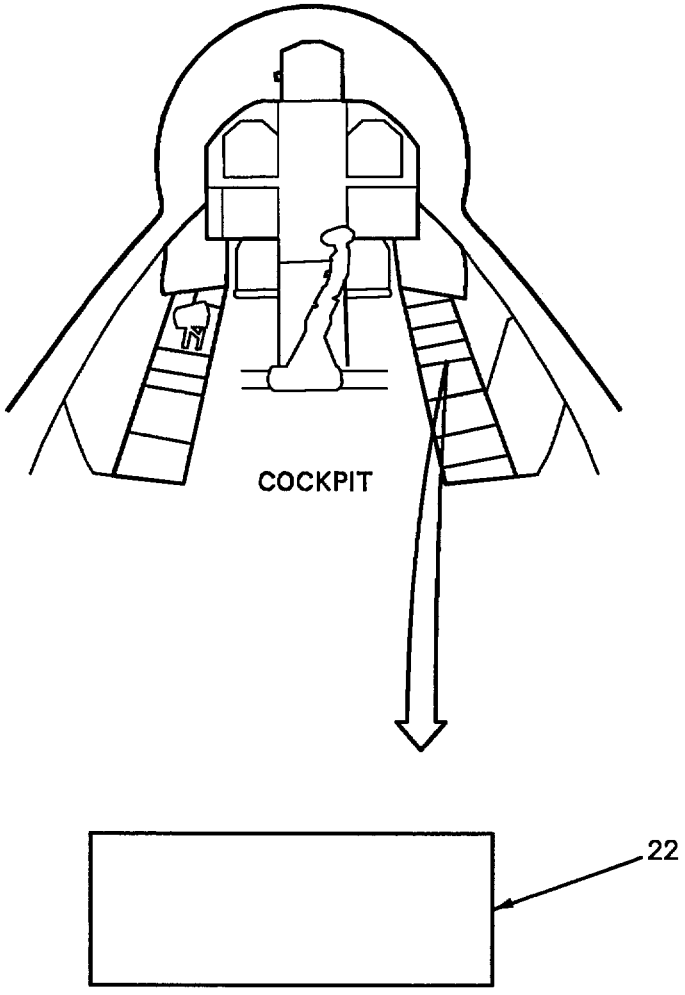
01400103

Figure 1. Stores Management System Locator (Sheet 3)



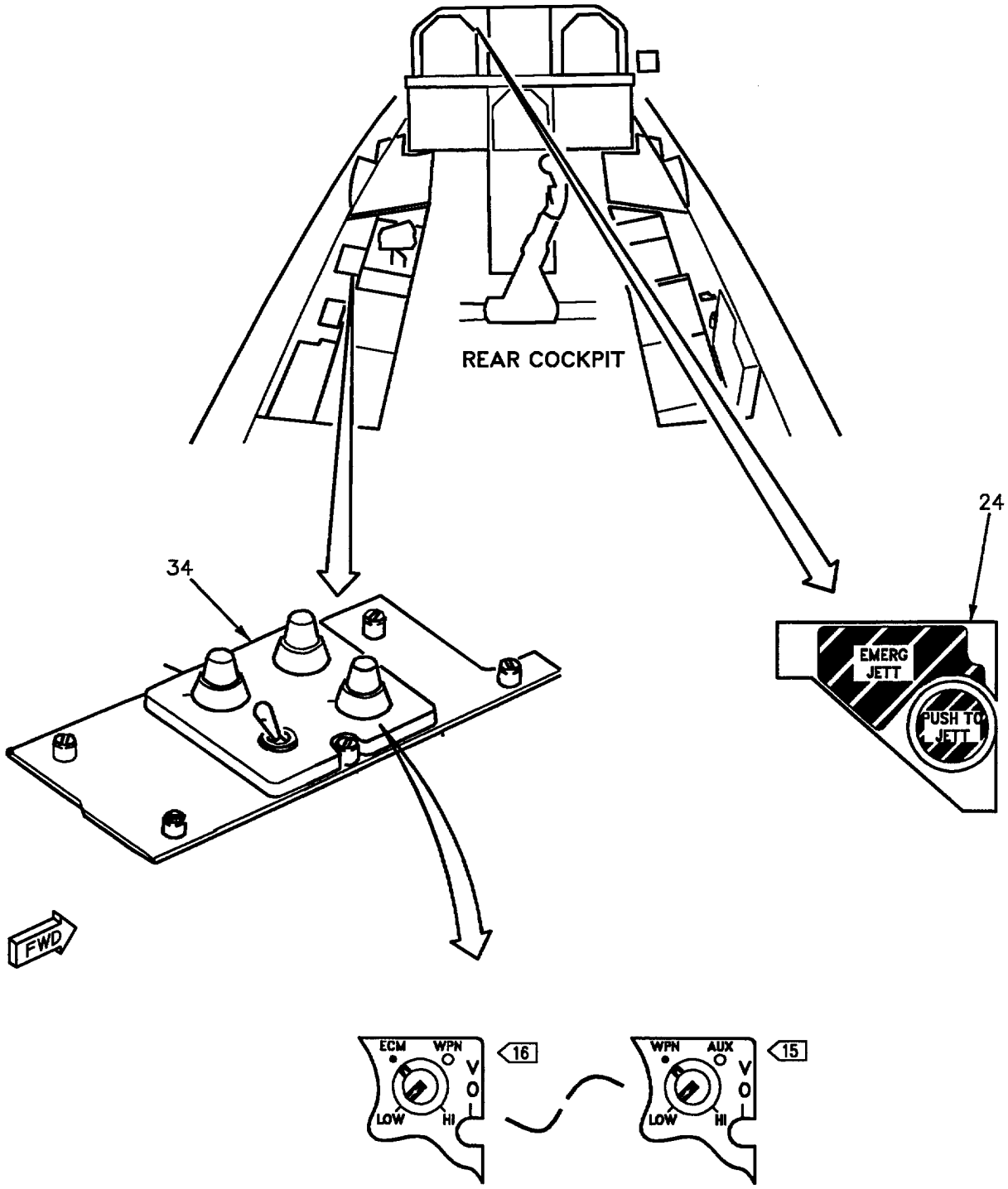
01400104

Figure 1. Stores Management System Locator (Sheet 4)



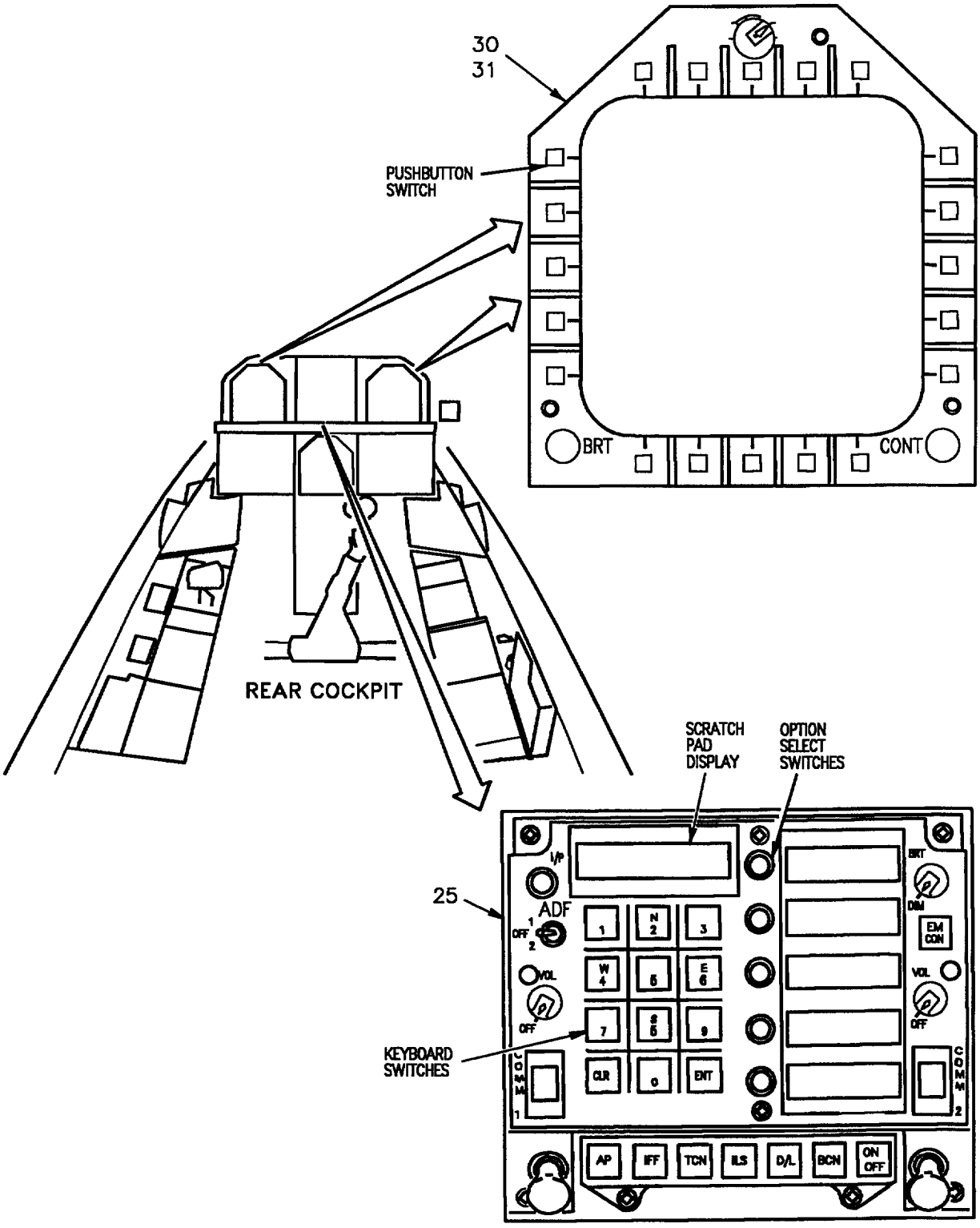
01400105

Figure 1. Stores Management System Locator (Sheet 5)



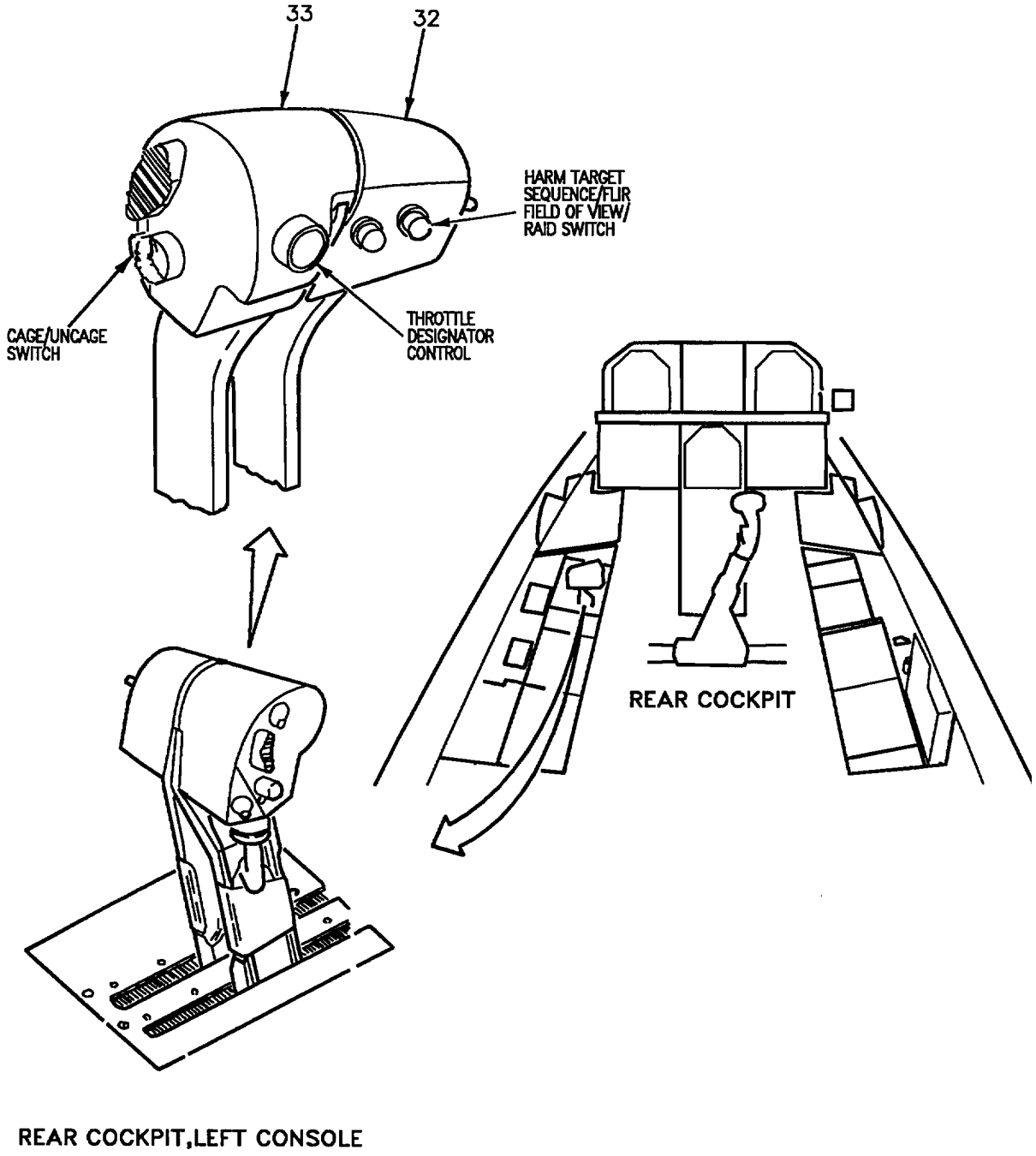
01400106

Figure 1. Stores Management System Locator (Sheet 6)



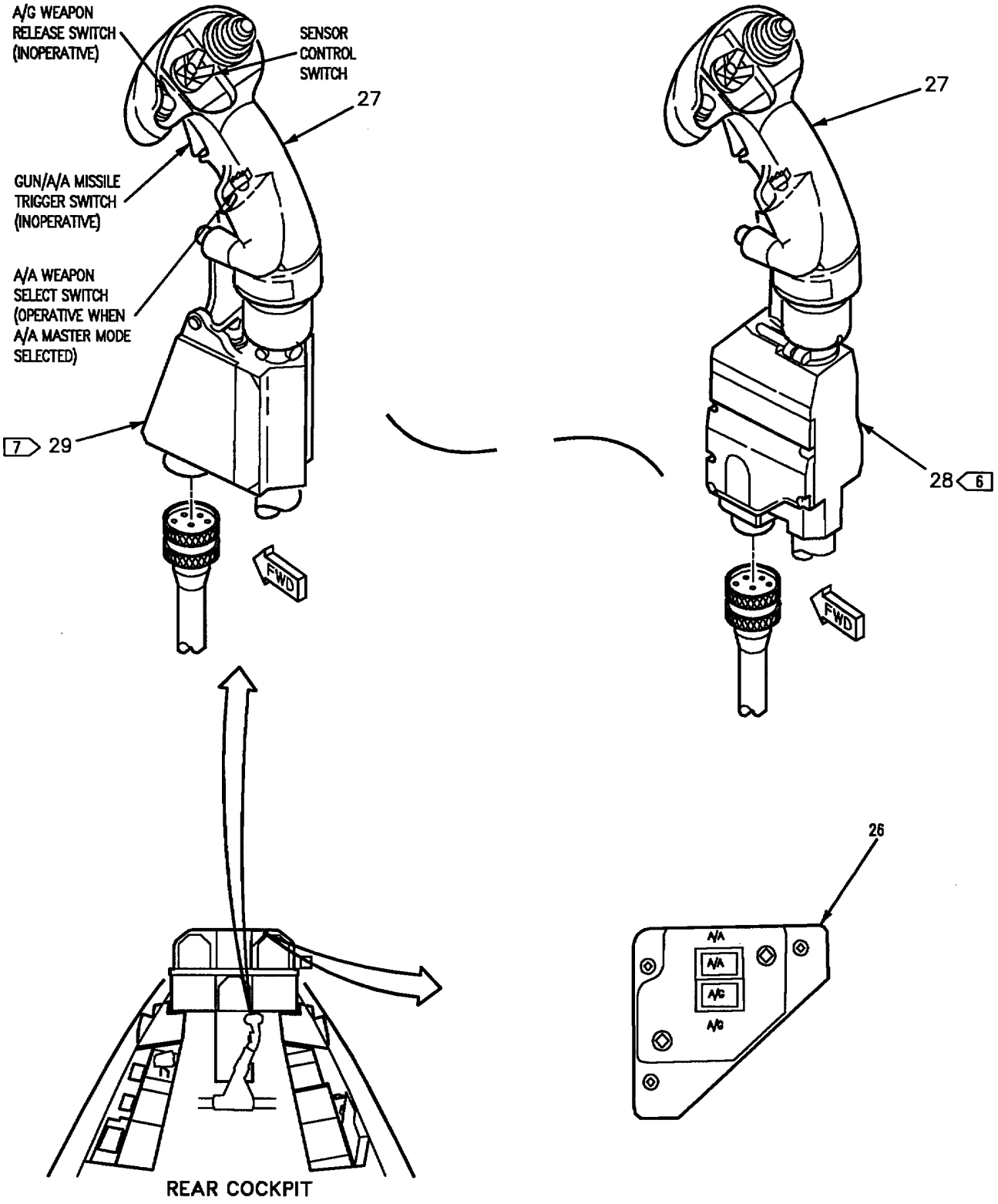
01400107

Figure 1. Stores Management System Locator (Sheet 7)



01400108

Figure 1. Stores Management System Locator (Sheet 8)



01400109

Figure 1. Stores Management System Locator (Sheet 9)

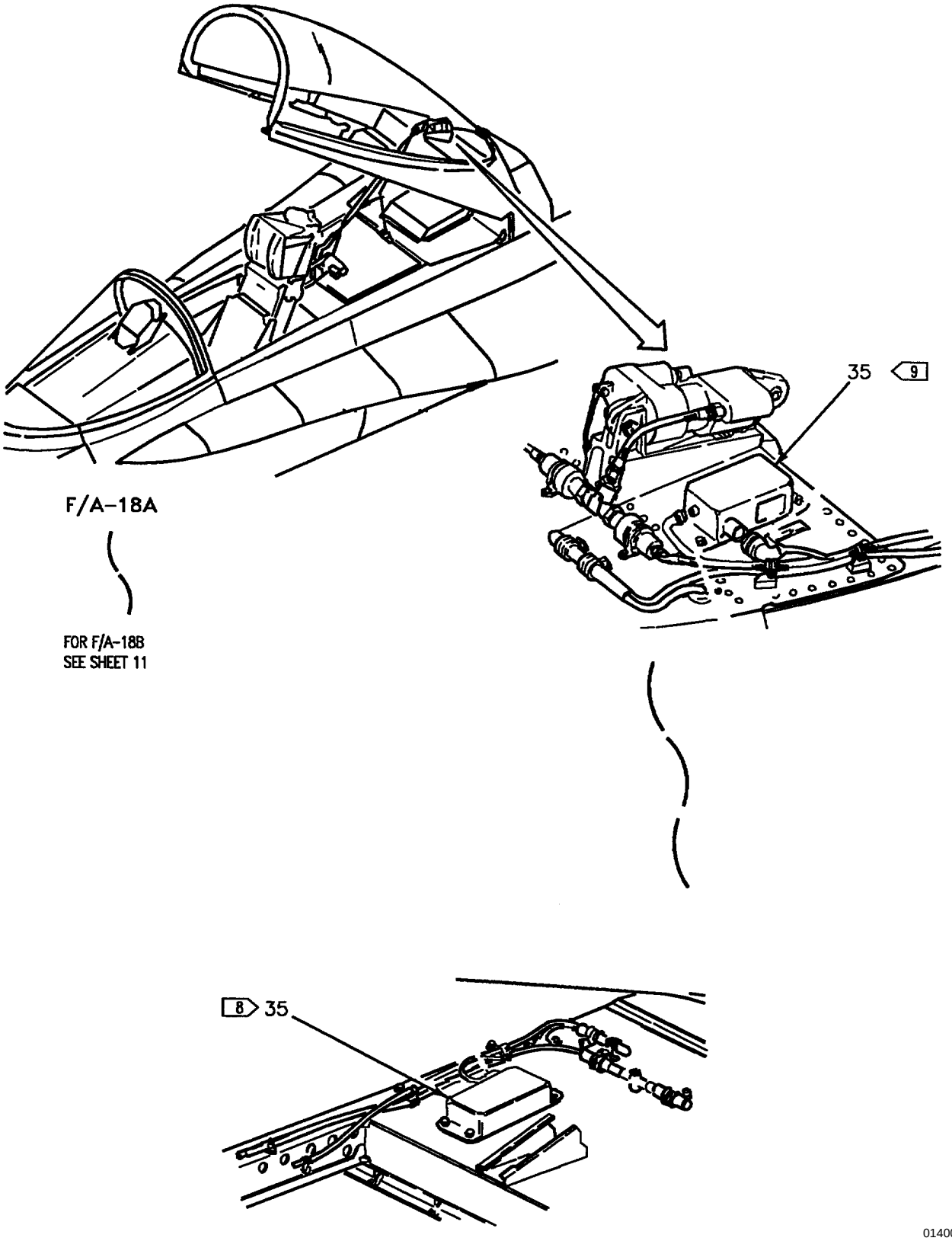
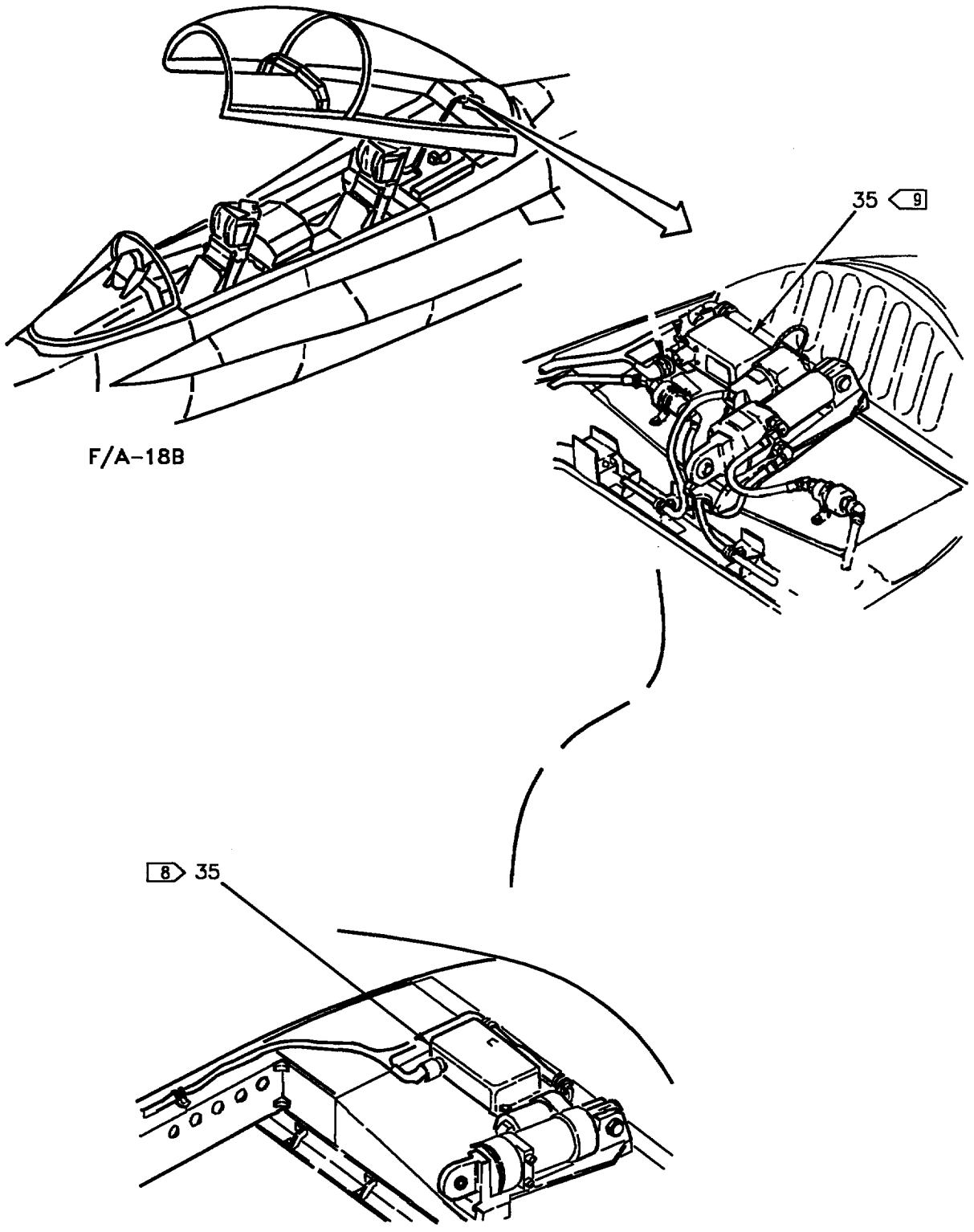
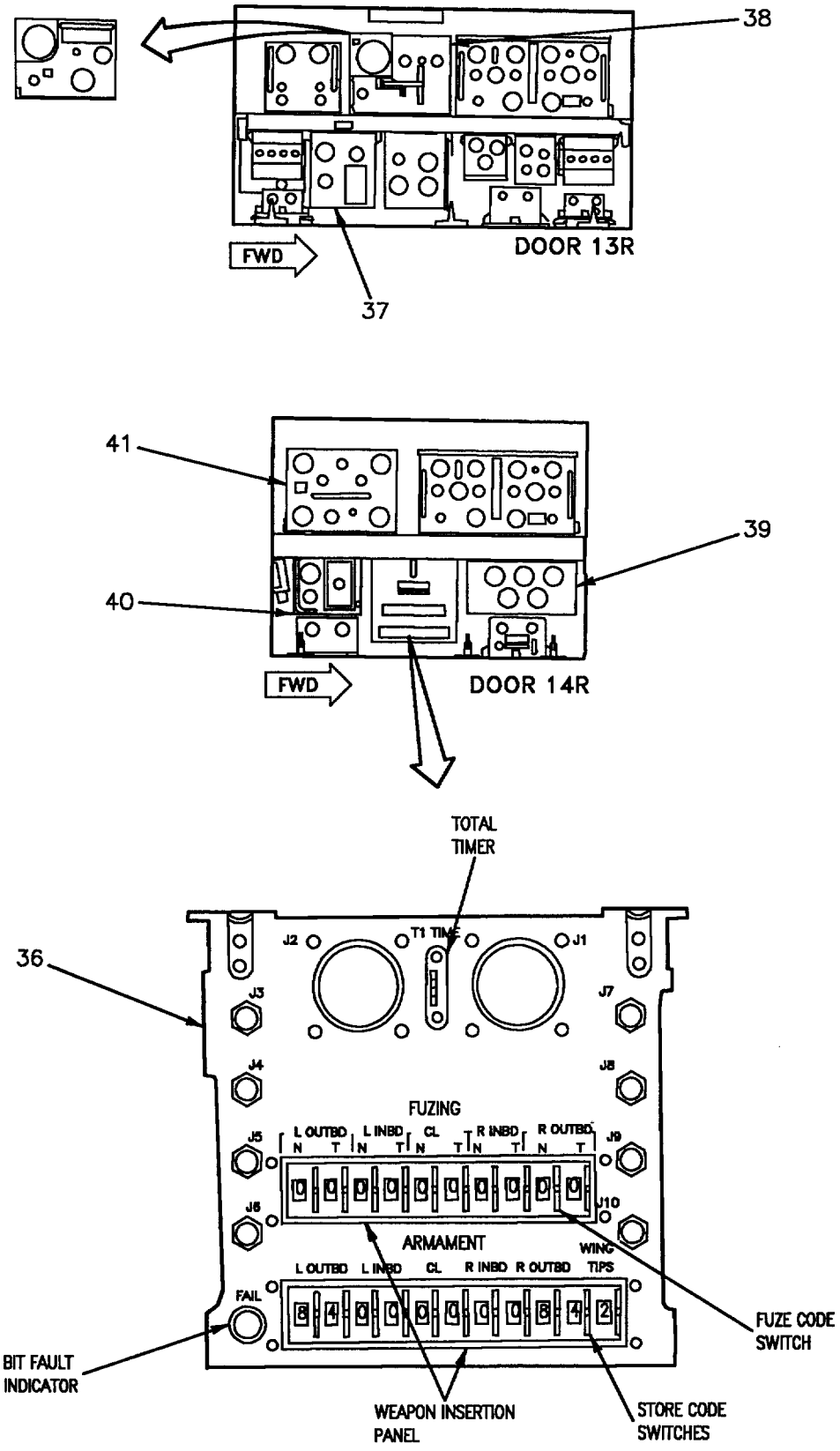


Figure 1. Stores Management System Locator (Sheet 10)



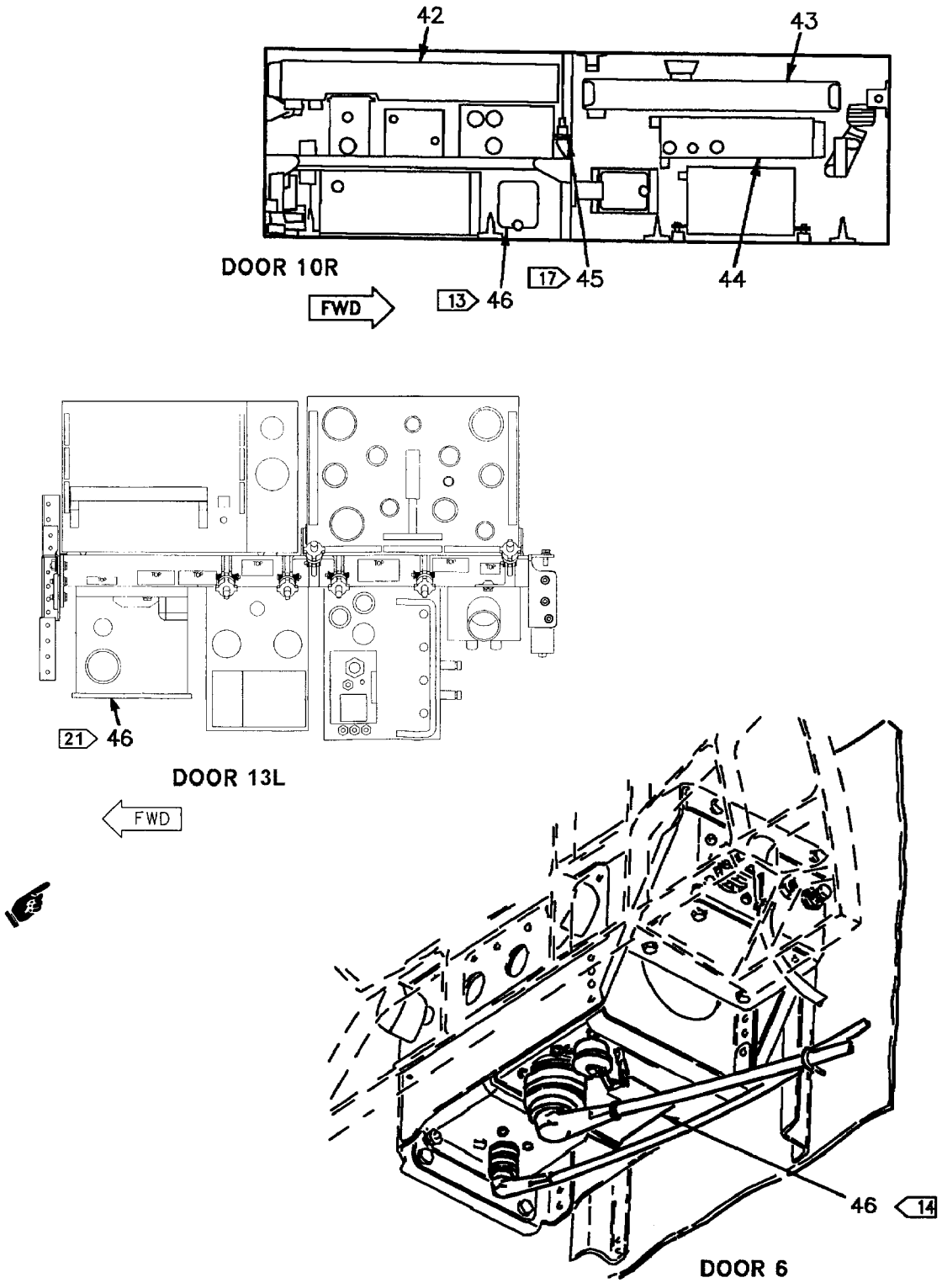
01400111

Figure 1. Stores Management System Locator (Sheet 11)



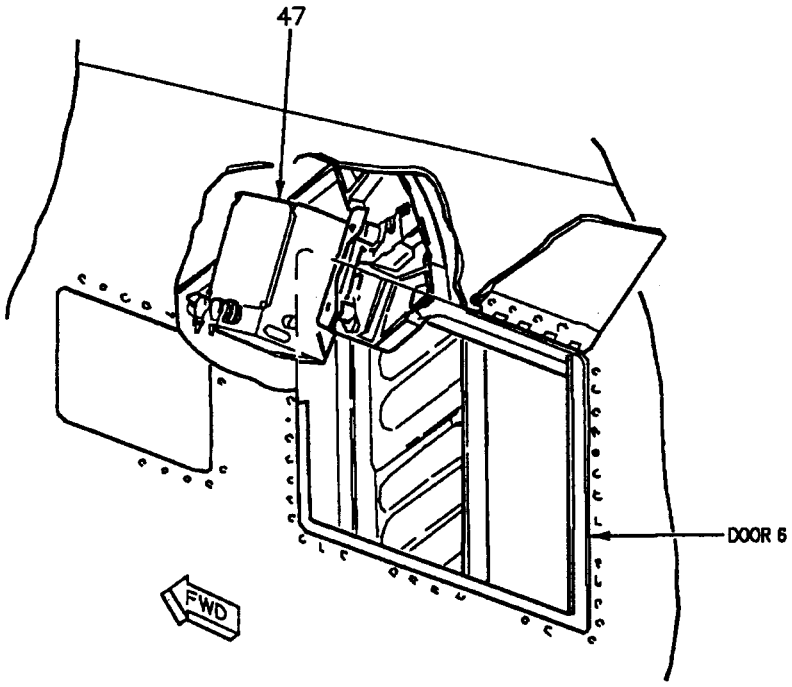
01400112

Figure 1. Stores Management System Locator (Sheet 12)



01400113

Figure 1. Stores Management System Locator (Sheet 13)



01400114

Figure 1. Stores Management System Locator (Sheet 14)

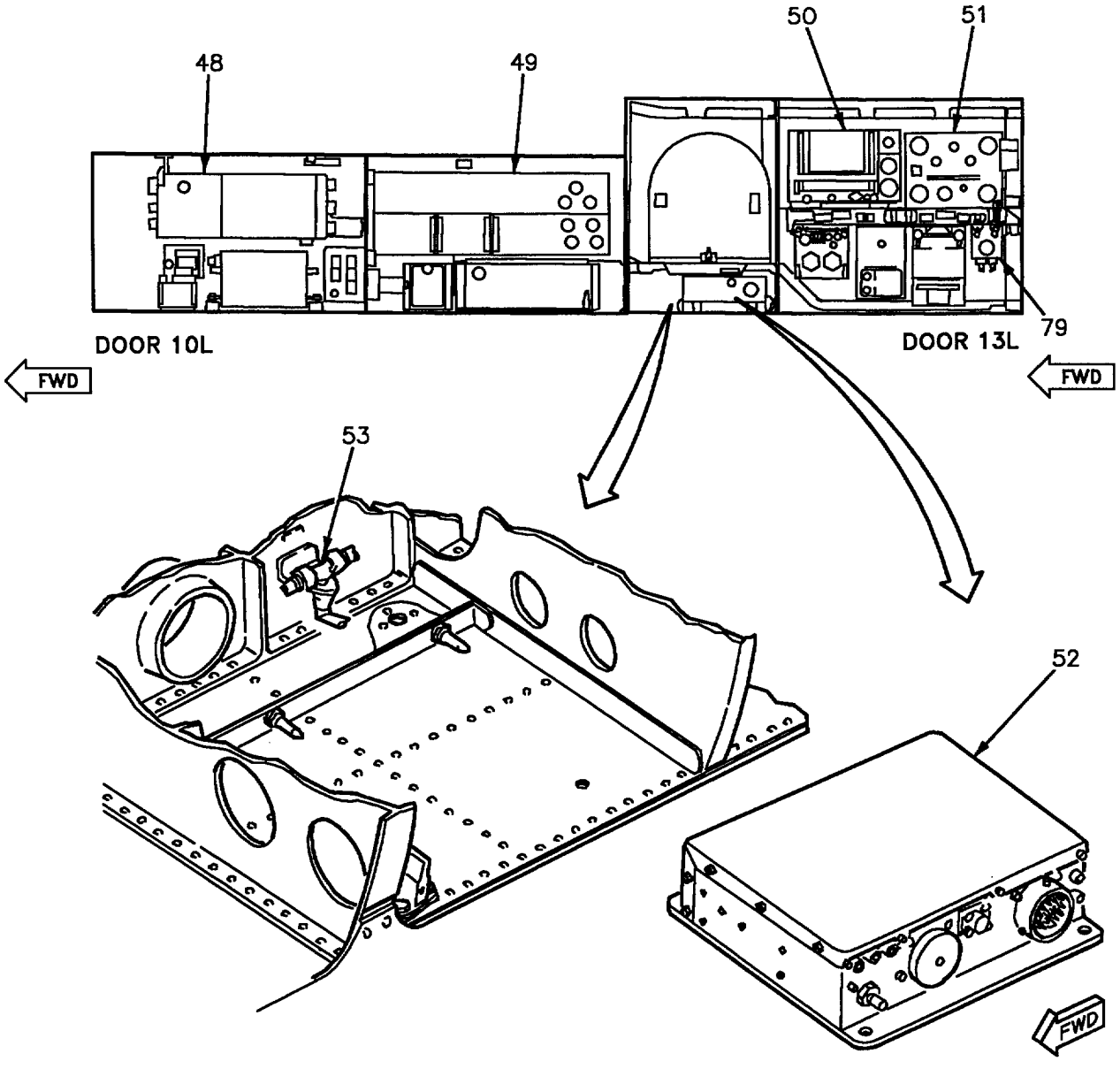
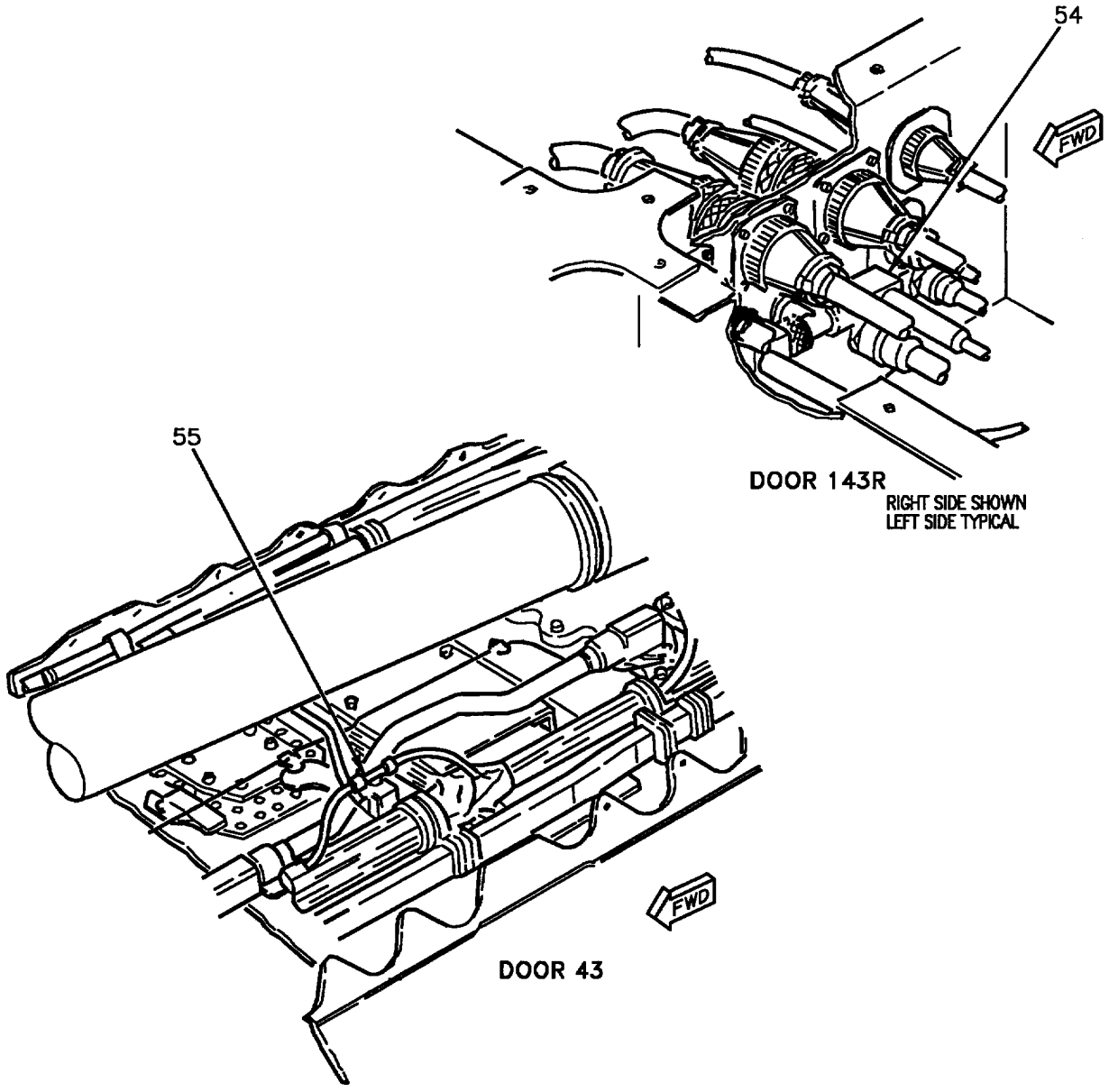
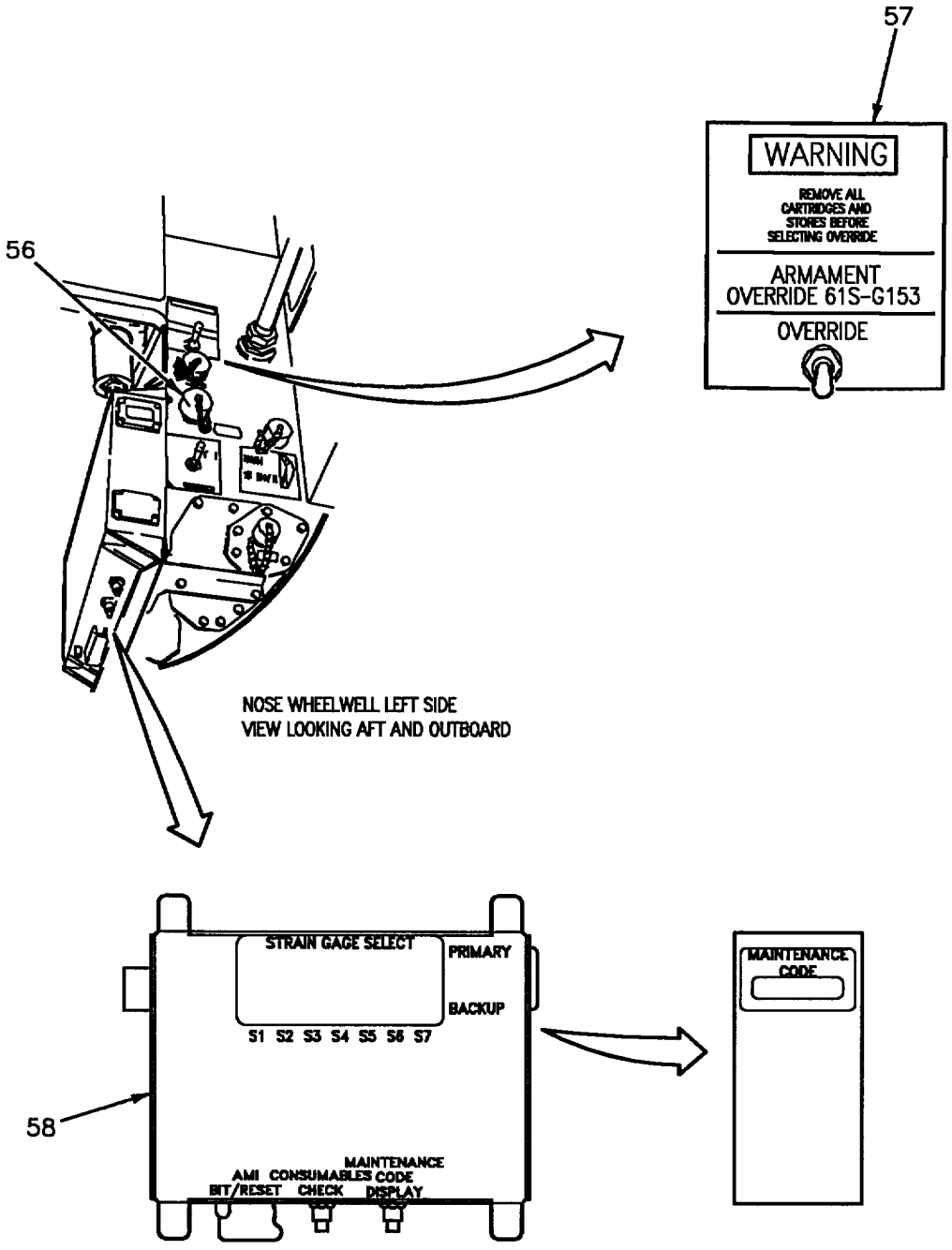


Figure 1. Stores Management System Locator (Sheet 15)



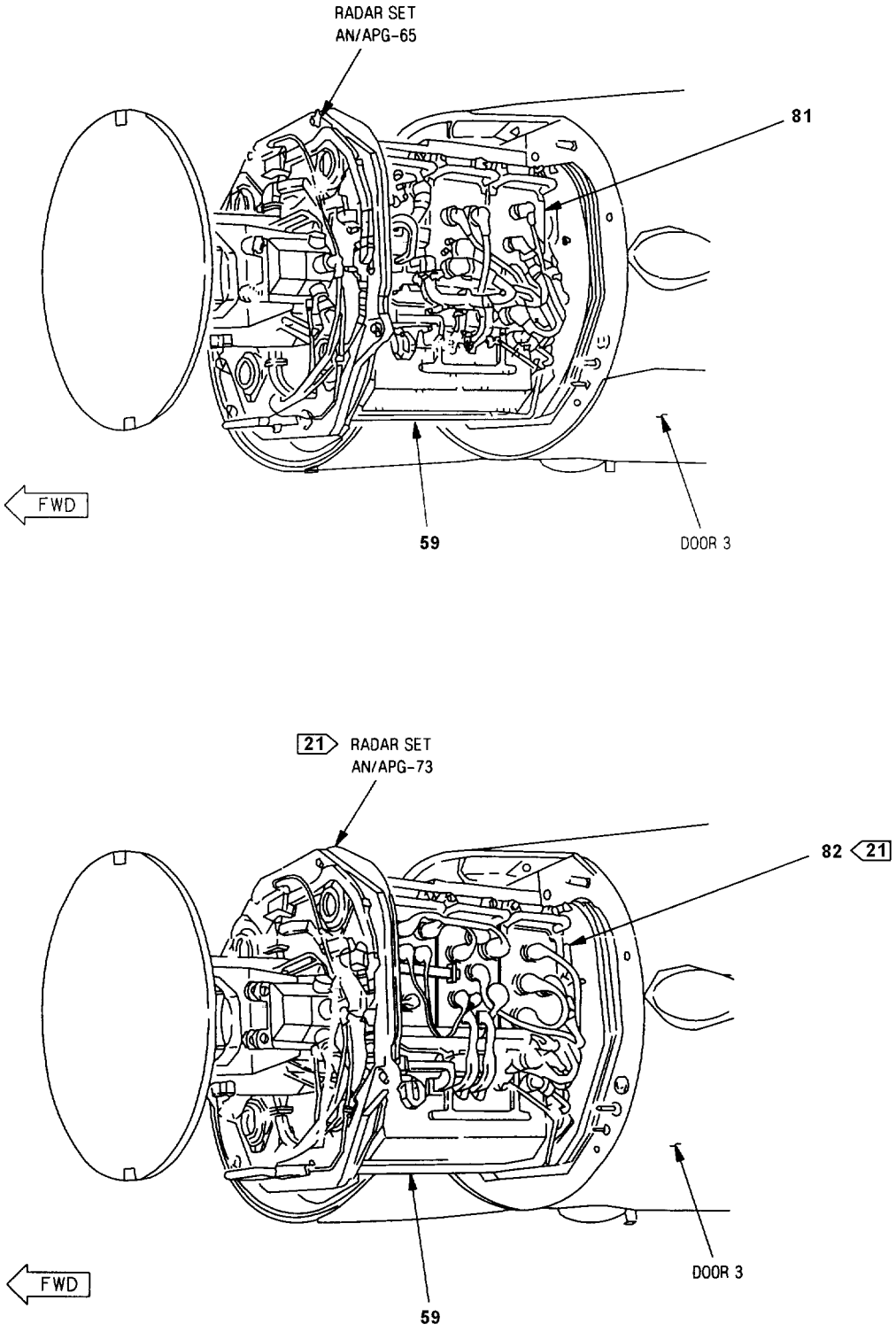
01400116

Figure 1. Stores Management System Locator (Sheet 16)



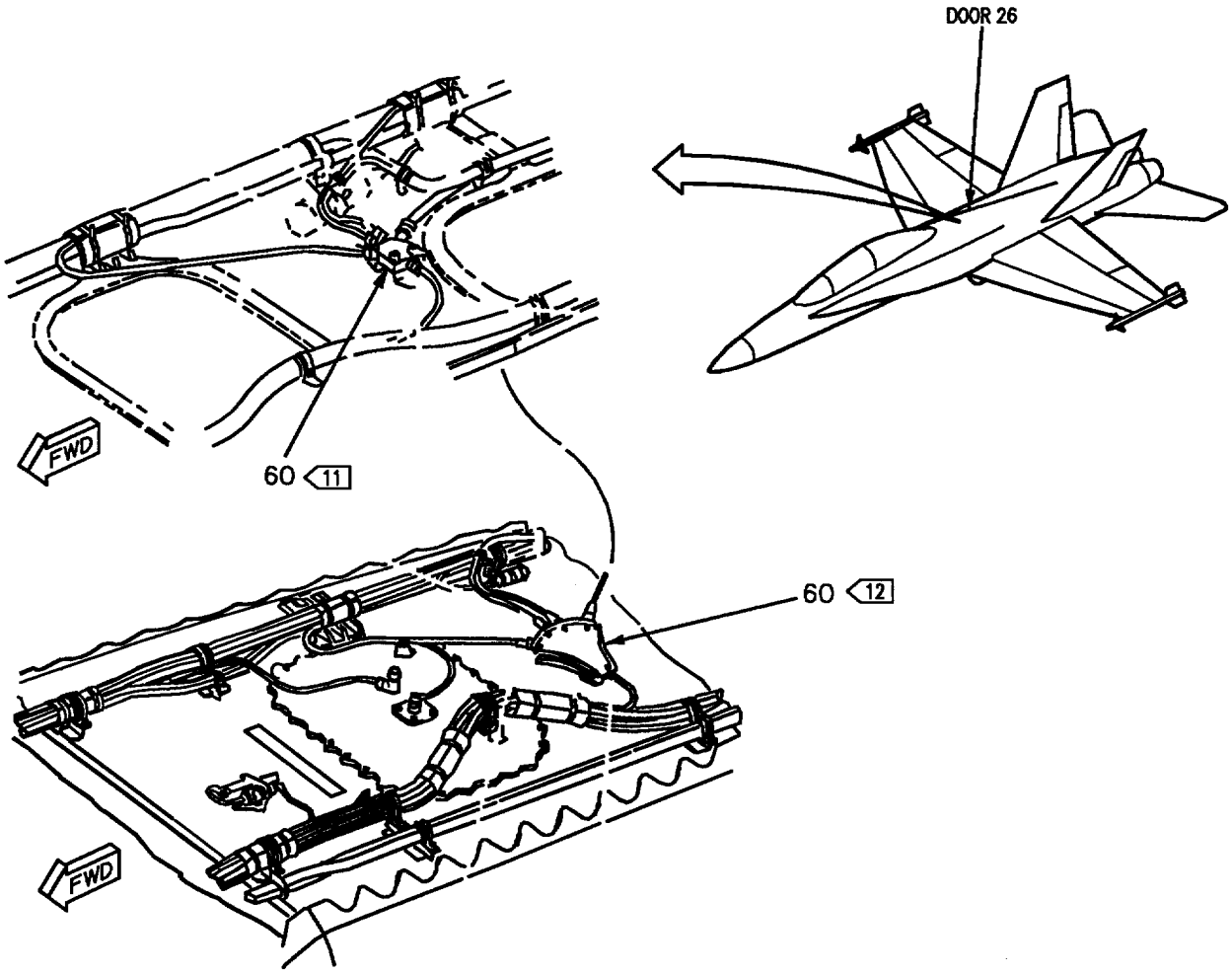
01400117

Figure 1. Stores Management System Locator (Sheet 17)



01400118

Figure 1. Stores Management System Locator (Sheet 18)



01400119

Figure 1. Stores Management System Locator (Sheet 19)

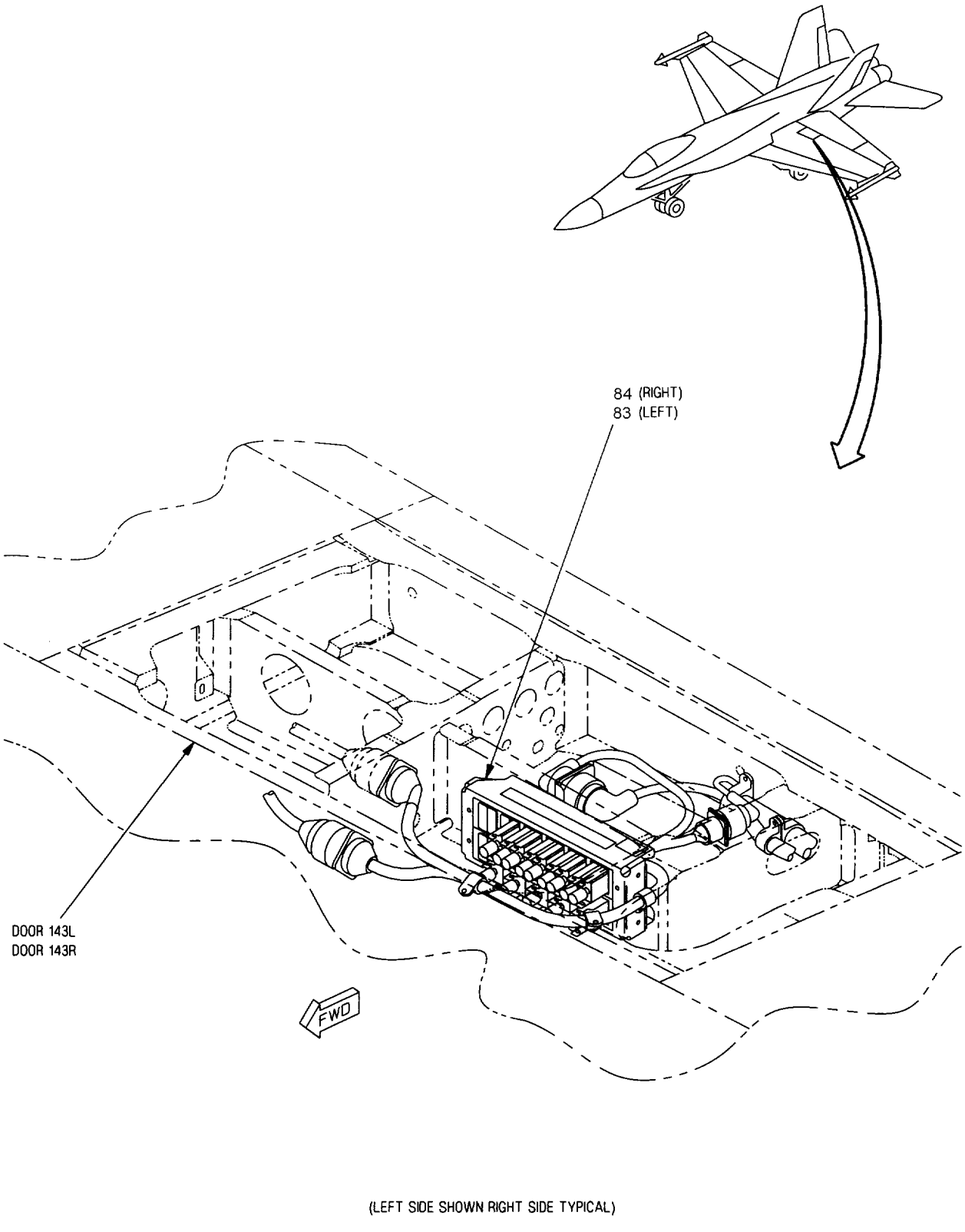
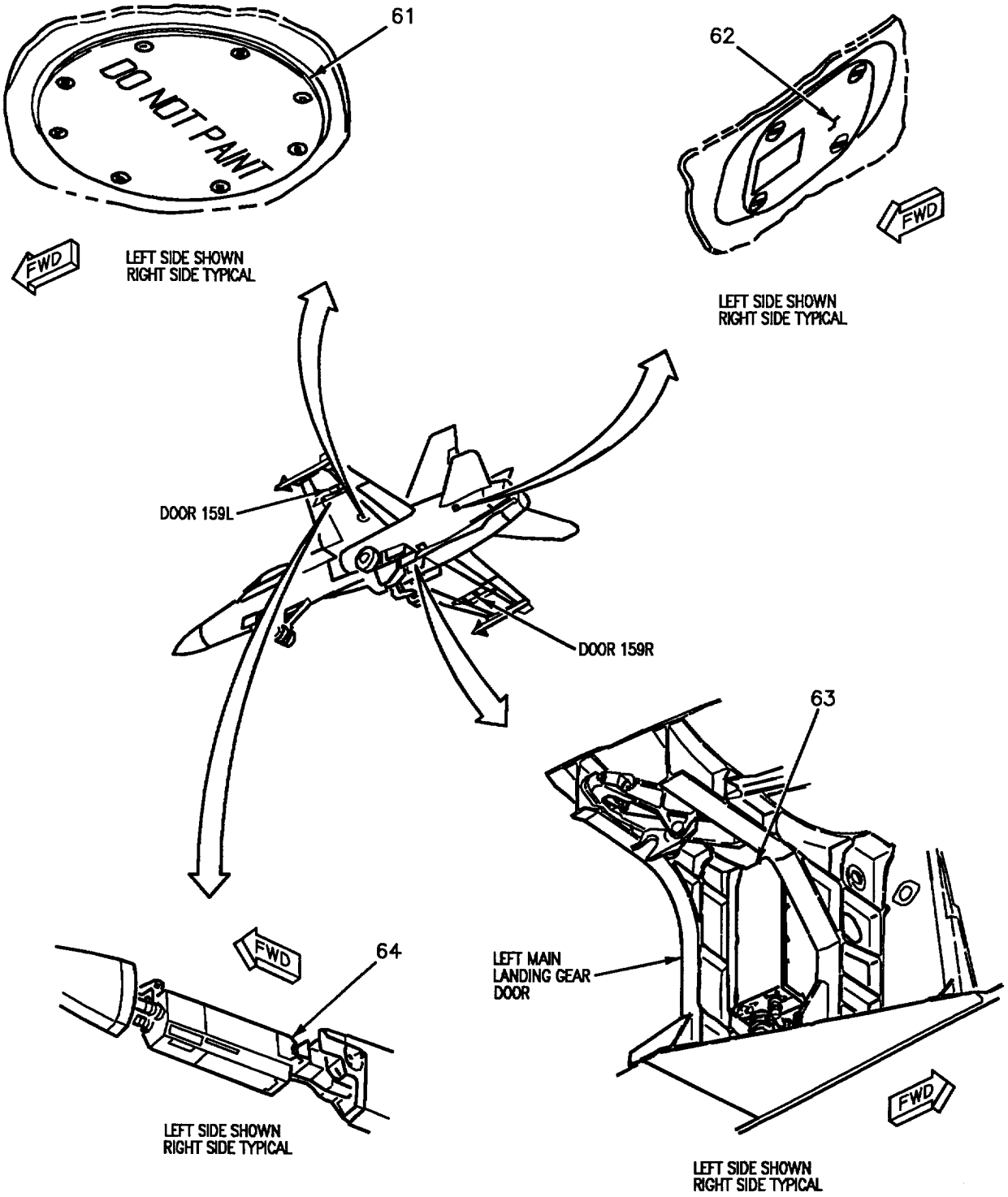
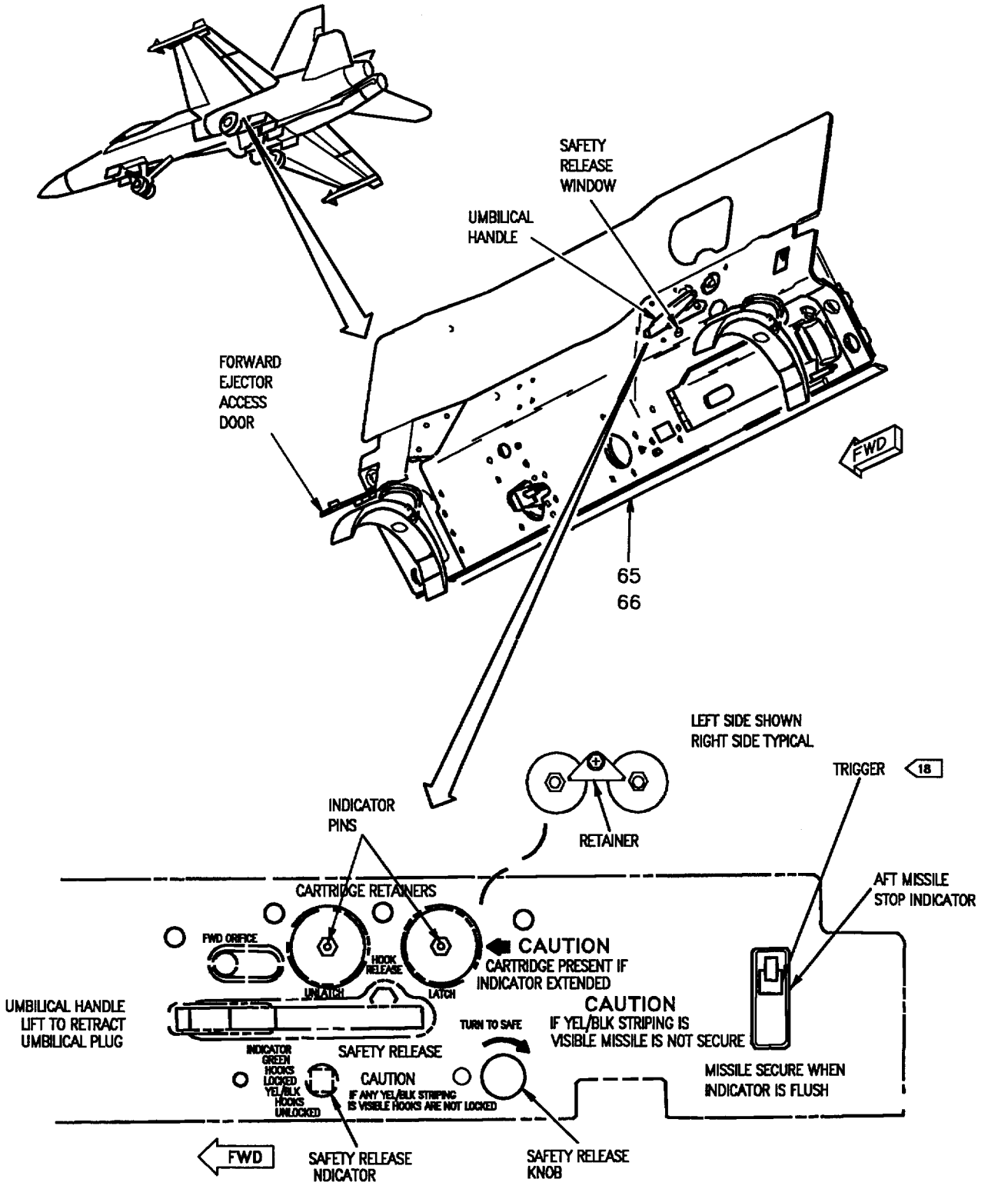


Figure 1. Stores Management System Locator (Sheet 20)



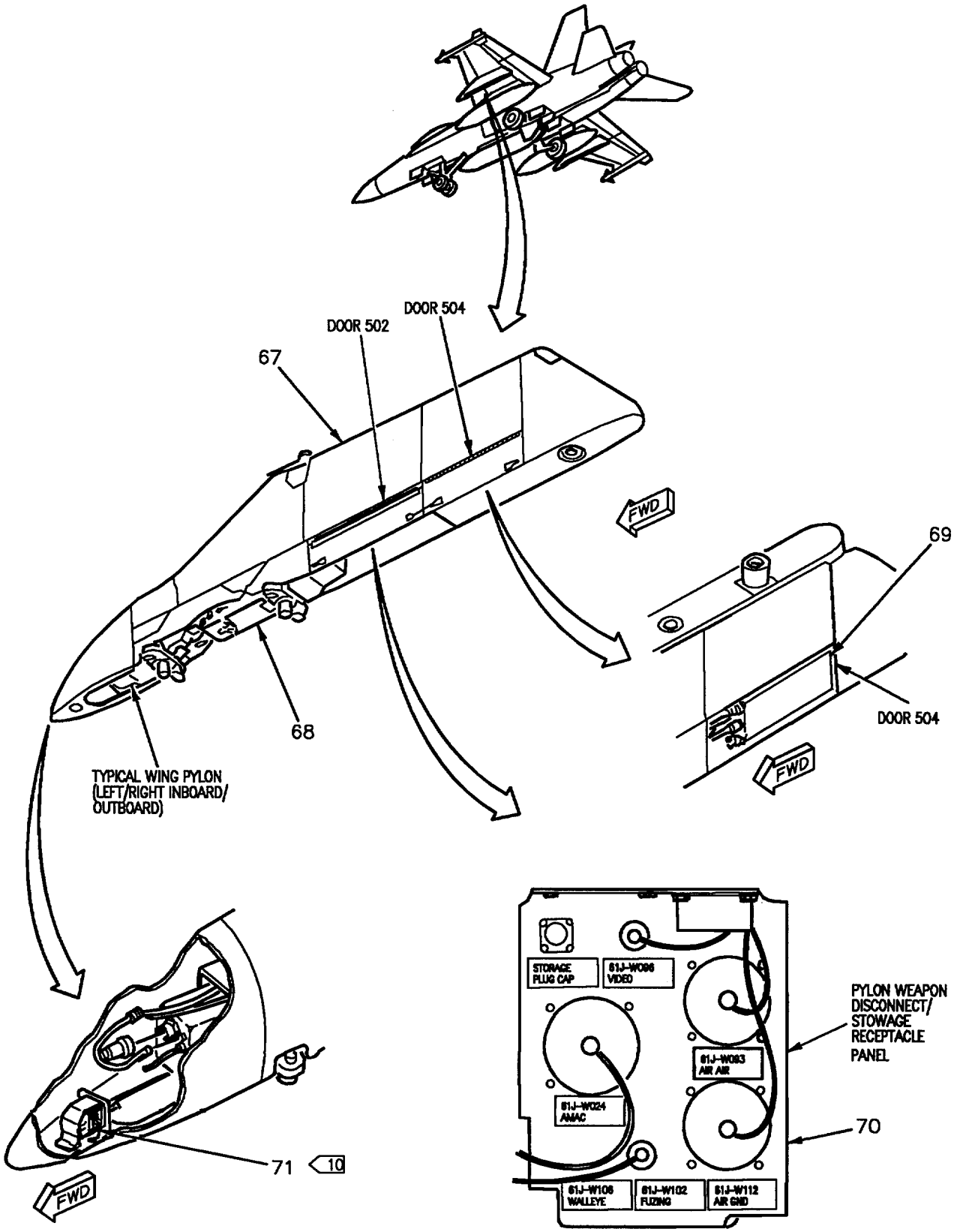
01400121

Figure 1. Stores Management System Locator (Sheet 21)



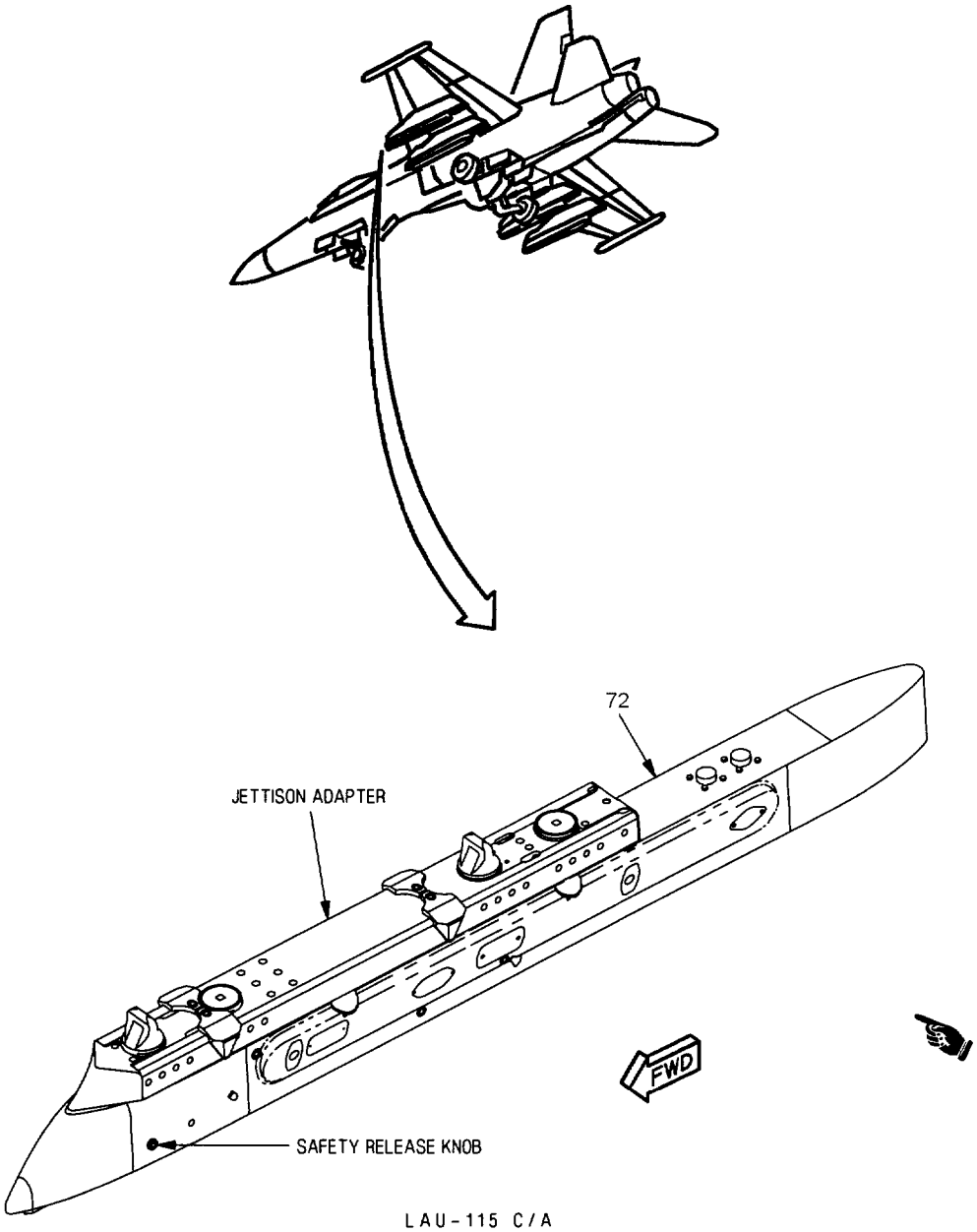
01400122

Figure 1. Stores Management System Locator (Sheet 22)



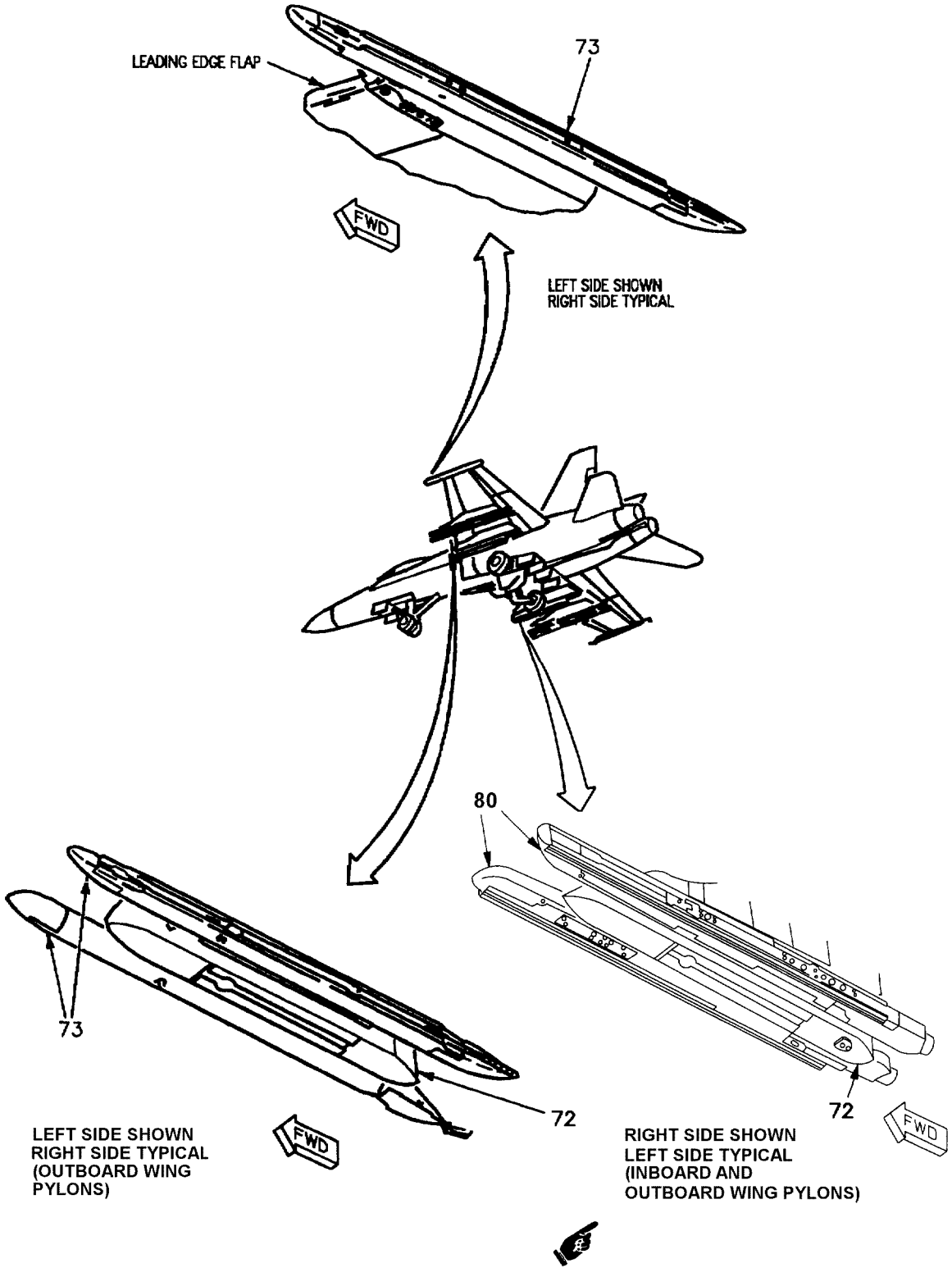
01400123

Figure 1. Stores Management System Locator (Sheet 23)



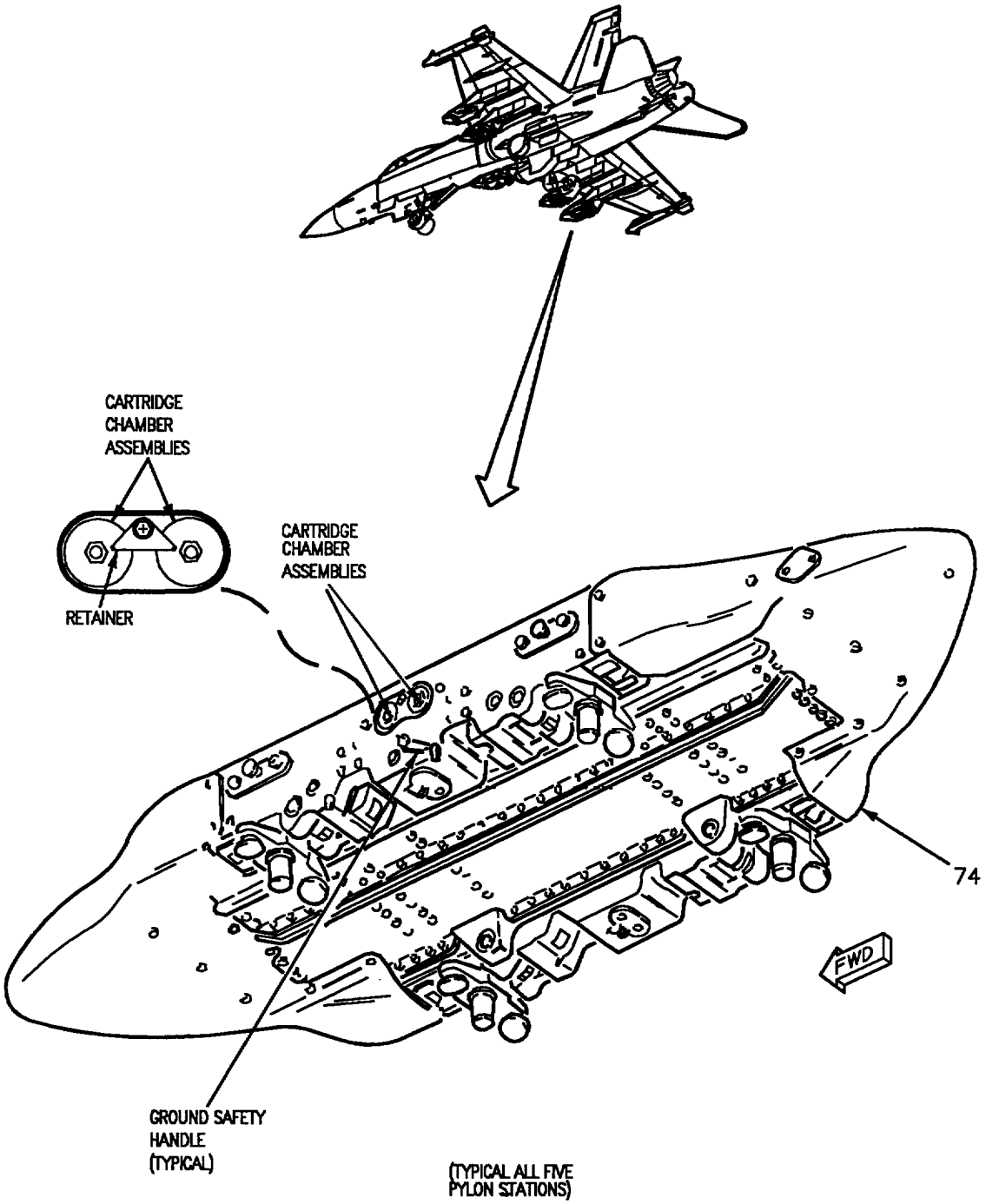
01400124

Figure 1. Stores Management System Locator (Sheet 24)



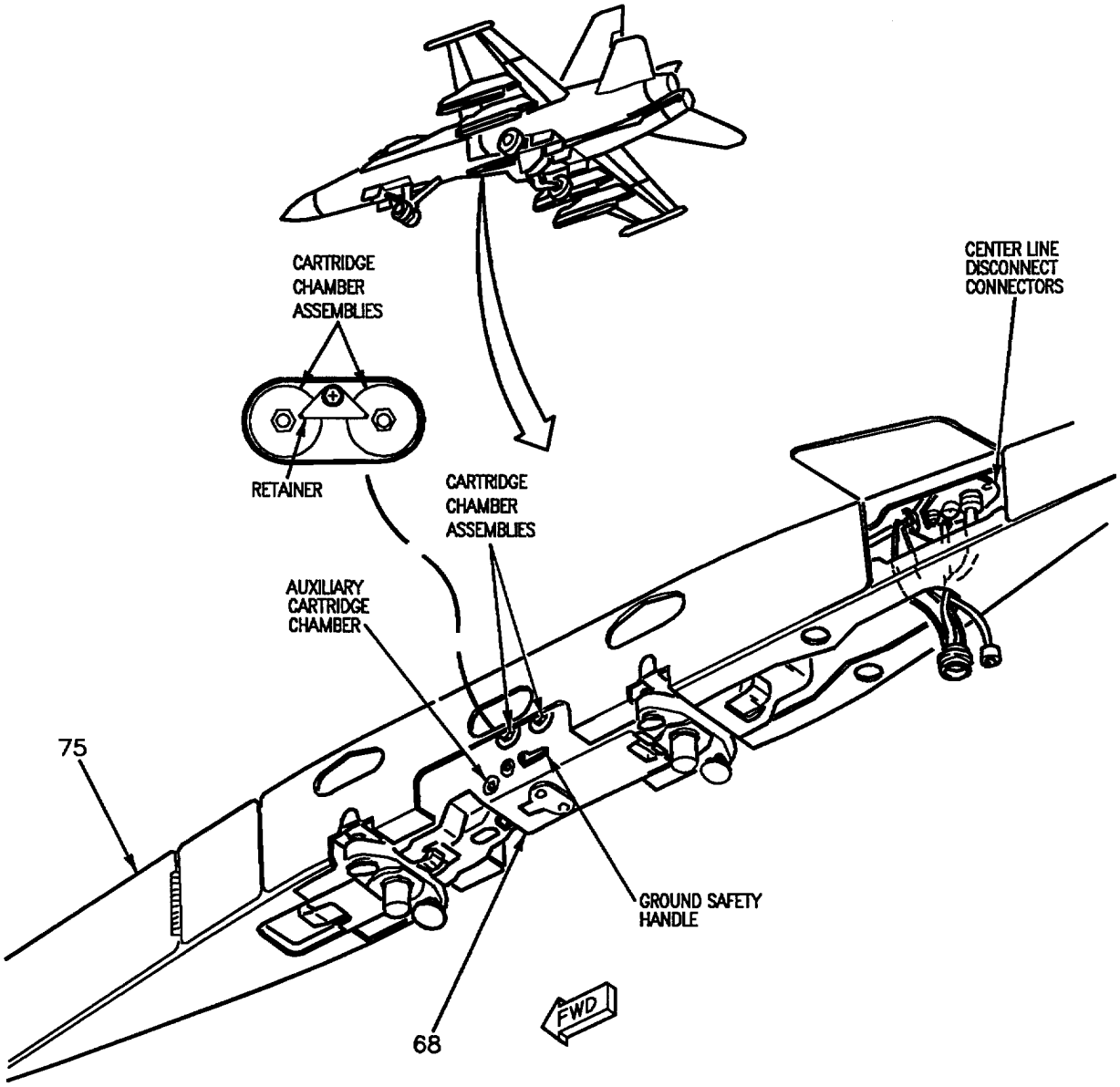
01400125

Figure 1. Stores Management System Locator (Sheet 25)



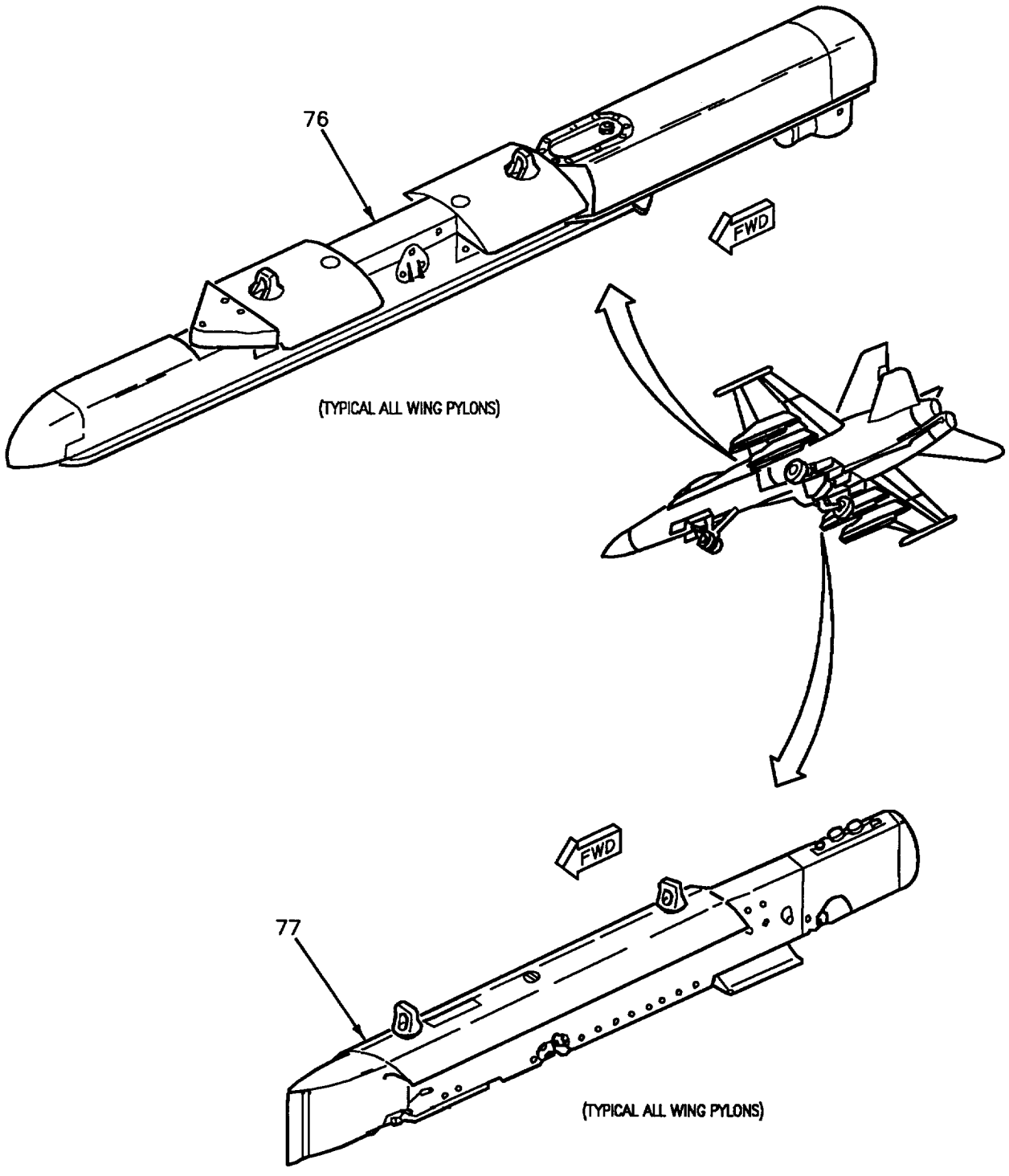
01400126

Figure 1. Stores Mangaement System Locator (Sheet 26)



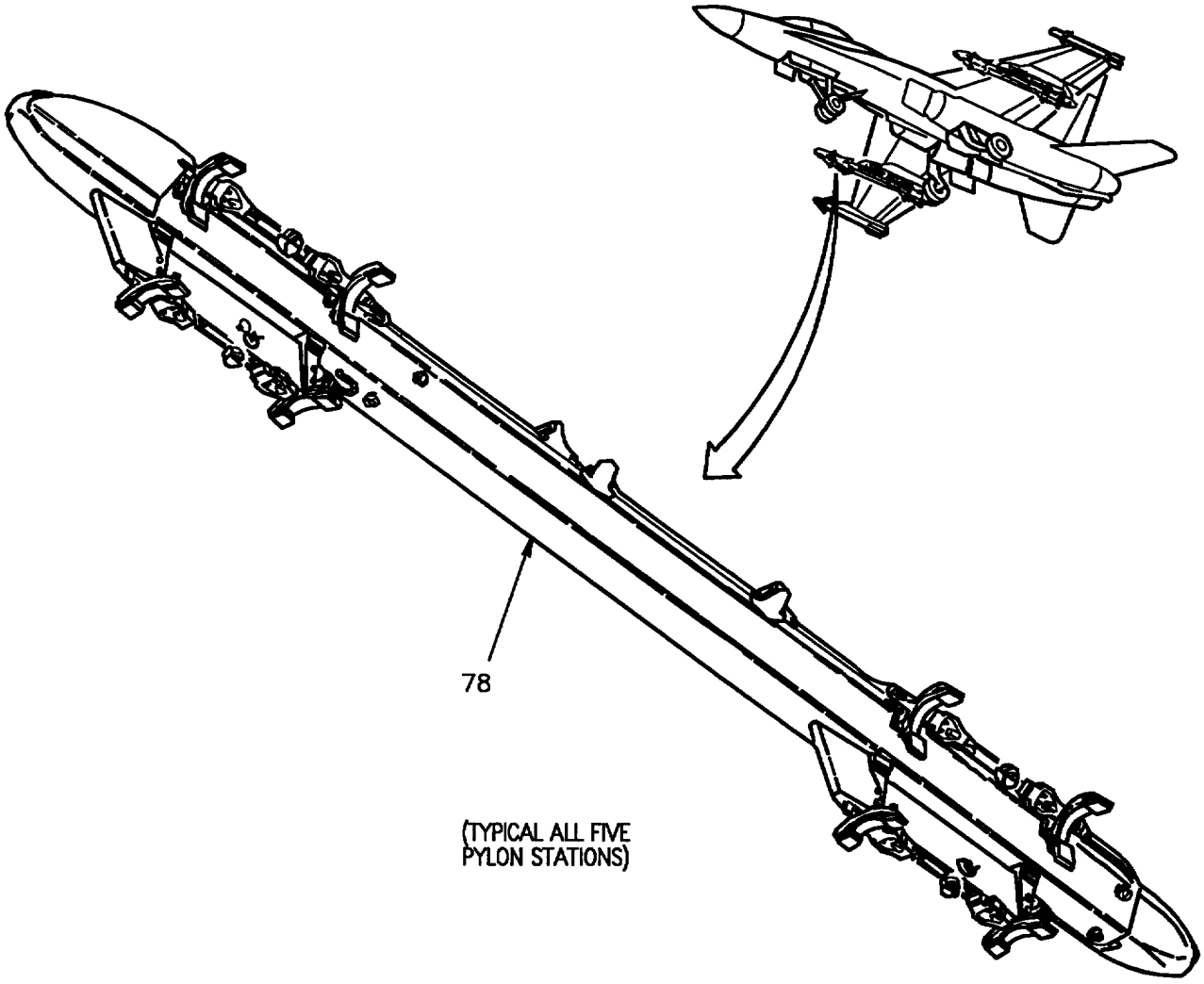
01400127

Figure 1. Stores Management System Locator (Sheet 27)



01400128

Figure 1. Stores Management System Locator (Sheet 28)



01400129

Figure 1. Stores Management System Locator (Sheet 29)

Nomenclature	Index No.	Ref Des
AIM-7 TRANSMISSION LINE COUPLER CU-2265/APG-65	60	60A-P008
AIRCRAFT BOMB EJECTOR RACK BRU-32( )	68	61A-W097
AIRCRAFT BOMB EJECTOR RACK BRU-33( )	74	61A-Y505
AIRCRAFT CONTROLLER GRIP ASSEMBLY	14	52A-J501
AIRCRAFT FUSELAGE CENTERLINE PYLON SUU-62( )	75	61A-Z506
AIRCRAFT GUIDED MISSILE LAUNCHER LAU-115( )	72	61A-Y502
AIRCRAFT GUIDED MISSILE LAUNCHER LAU-117( )	76	61A-Y503
AIRCRAFT GUIDED MISSILE LAUNCHER LAU-118( )	77	61A-Y504
20 AIRCRAFT GUIDED MISSILE LAUNCHER LAU-127( )	80	61A-Y588
AIRCRAFT WING PYLON SUU-63( )	67	61A-W507
RELEASE CONSENT DUMMY PANEL	22	61A-J532
ARMAMENT COMPUTER CP-1342/AYQ-9(V)	36	61A-F001
ARMAMENT OVERRIDE SWITCH	57	61S-G153
COMMAND LAUNCH COMPUTER CP-1001( )/AWG	38	61A-F010
COMPUTER POWER SUPPLY CP-1325/APG-65	81	60A-A505
CONTROL-CONVERTER C-10382/A	37	82A-F001
5 CONTROL STICK GRIP ADAPTER ASSEMBLY	16	52A-Y312
4 CONTROL STICK SENSOR DT-601/ASW-44	15	84A-J037
DIGITAL DATA COMPUTER NO. 1	51	83A-E001
DIGITAL DATA COMPUTER NO. 2	41	83A-F002
DIGITAL DATA INDICATOR ID-2150/ASM-612	58	85A-G003
ECM CONTROL PANEL ASSEMBLY AUX REL SWITCH	13	52A-H087 61S-H139
ELECTRICAL FUZING ADAPTER	53	61CPE047
ELECTRICAL FUZING ADAPTER	55	61CPP028

Figure 1. Stores Management System Locator (Sheet 30)

Nomenclature	Index No.	Ref Des
ELECTRICAL FUZING ADAPTER (LEFT)	54	61CPU030
ELECTRICAL FUZING ADAPTER (RIGHT)	54	61CPV031
ELECTRICAL FUZING POWER SUPPLY PP-6419/AWW-4(V)	52	61A-E009
ELECTRONIC EQUIPMENT CONTROL C-10380/ASQ	3	79A-J006
EMERG JETT PANEL ASSEMBLY	24	61A-K237
FLAPS, LANDING GEAR AND STORES INDICATOR PANEL	19	52A-H084
GND PWR CONTROL PANEL ASSEMBLY	17	1A-H004
GUIDED MISSILE LAUNCHER LAU-7( )	73	61A-Y501
GUN COMMAND SIGNAL ENCODER-DECODER KY-855/AYQ-9(V)	47	61A-A020
HEAD-UP DISPLAY UNIT AN/AVQ-28	2	79A-J001
INERTIAL NAVIGATION GROUP OA-8955/ASN-130 OR INERTIAL NAVIGATION UNIT CN-1561/ASN-130A	50	68A-E001
INTERCOMMUNICATION AMPLIFIER CONTROL AM-6979/A, AM-7360/A OR 20 AM-7539/A	12	76A-H009
INTR LT CONTROL BOX PANEL ASSEMBLY	9	8A-J002
13 LANDING GEAR CONTROL UNIT	46	12A-A004
21 LANDING GEAR CONTROL UNIT	46	12A-E004
14 LANDING GEAR CONTROL UNIT	46	12A-D004
LANDING GEAR CONTROL	21	12A-H008
LEFT AIM-7 FUSELAGE ANTENNA AS-3424/APG-65	62	60E-S011
LEFT AIM-7 WING ANTENNA AS-3354/APG	61	60E-U013
LEFT AIRCRAFT GUIDED MISSILE LAUNCHER LAU-116/A	65	61A-Y200A
LEFT DIGITAL DISPLAY INDICATOR IP-1317( )	1	80A-H001
LEFT FUSELAGE COMMAND SIGNAL ENCODER-DECODER KY-854/AYQ-9(V)	63	61A-P014
LEFT THROTTLE GRIP	6	52A-H049

Figure 1. Stores Management System Locator (Sheet 31)

Nomenclature	Index No.	Ref Des
LEFT WING (INBOARD/OUTBOARD) PYLON COMMAND SIGNAL ENCODER-DECODER KY-853/AYQ-9(V)	69	61A-W012
LEFT WING TIP COMMAND SIGNAL ENCODER-DECODER KY-851/AYQ-9(V)	64	61A-U011
LH VERTICAL CONSOLE CONTROL PANEL	20	52A-H077
LOCK/SHOOT LIGHT ASSEMBLY	7	8DSJ150
MAP GAIN CONTROL PANEL ASSEMBLY	8	52A-J076
MASTER ARM CONTROL PANEL ASSEMBLY	18	52A-H075
MASTER MODE SELECT PANEL ASSEMBLY	26	61A-L217
MC/HYD ISOL CONTROL PANEL ASSEMBLY	11	52A-H081
MULTIPLE EJECTOR RACK	78	61A-Y541
MULTIPLEX TEST CONNECTOR	56	83J-G003
NO. 2 CIRCUIT BREAKER PANEL ASSEMBLY	43	52A-D024
NO. 4 CIRCUIT BREAKER PANEL ASSEMBLY	42	52A-D026
NO. 5 CIRCUIT BREAKER PANEL ASSEMBLY	44	52A-D092
NO. 7 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	49	52A-C057
NO. 8 CIRCUIT BREAKER/RELAY PANEL ASSEMBLY	48	52A-C159
NO. 2 RELAY PANEL ASSEMBLY	39	52A-F058
NO. 3 RELAY PANEL ASSEMBLY	79	52A-E059
20 NO. 10 RELAY PANEL ASSEMBLY	83	52A-V044
20 NO. 11 RELAY PANEL ASSEMBLY	84	52A-U045
PYLON WEAPON DISCONNECT/STORAGE RECEPTACLE PANEL	70	
21 RADAR DATA PROCESSOR CP-2063/APG-73	82	60A-A503
RADAR TRANSMITTER T-1377/APG-65	59	60TRA504
REAR AIRCRAFT CONTROLLER GRIP ASSEMBLY	27	52A-L504

Figure 1. Stores Management System Locator (Sheet 32)

Nomenclature	Index No.	Ref Des
7 REAR CONTROL STICK GRIP ADAPTER ASSEMBLY	29	52A-Y312
6 REAR CONTROL STICK SENSOR DT-601/ASW-44	28	84A-L096
REAR ELECTRONIC EQUIPMENT CONTROL C-10380/ASQ	25	76A-K028
REAR LEFT DIGITAL DISPLAY INDICATOR IP-1318( )	30	80A-K019
REAR LEFT THROTTLE GRIP	32	52A-K301
REAR RIGHT DIGITAL DISPLAY INDICATOR IP-1318( )	31	80A-L017
REAR RIGHT THROTTLE GRIP	33	52A-K302
RIGHT AIM-7 FUSELAGE ANTENNA AS-3423/APG-65	62	60E-T014
RIGHT AIM-7 WING ANTENNA AS-3354/APG	61	60E-V016
RIGHT AIRCRAFT GUIDED MISSILE LAUNCHER LAU-116( )	66	61A-Y200B
RIGHT DIGITAL DISPLAY INDICATOR IP-1317( )	4	80A-J002
RIGHT FUSELAGE COMMAND SIGNAL ENCODER-DECODER KY-854/AYQ-9(V)	63	61A-R016
RIGHT THROTTLE GRIP	5	52A-H048
RIGHT WING (INBOARD)/OUTBOARD) PYLON COMMAND SIGNAL ENCODER-DECODER KY-853/AYQ-9(V)	69	61A-W012
RIGHT WING TIP COMMAND SIGNAL ENCODER-DECODER K-851/AYQ-9(V)	64	61A-V019
SHOOT STROBE LIGHT POWER SUPPLY	35	8A-L080
SIGNAL DATA RECORDER RO-508/ASM-612	40	85A-F001
SNSR POD CONTROL BOX PANEL ASSEMBLY	10	52A-J080
17 STATION 8 28VDC POWER CONTROL RELAY	45	61K-D161
VOLUME CONTROL PANEL ASSEMBLY	34	76A-K032
10 WING PYLON RELAY BOX ASSEMBLY	71	61A-W258

LEGEND

1. ABBREVIATIONS: SEE WP002 01.
2. AIRCRAFT DOOR LOCATIONS ARE SHOWN IN A1-F18AC-LMM-010.

Figure 1. Stores Management System Locator (Sheet 33)

Nomenclature	Index No.	Ref Des

LEGEND (Continued)

3. CIRCUIT BREAKER ZONES ARE SHOWN IN A1-F18AC-LMM-000.

4 F/A-18A 161353 THRU 161519 BEFORE F/A-18 AFC 27.

5 F/A-18A 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27.

6 F/A-18B 161354 THRU 161360 BEFORE F/A-18 AFC 27.

7 F/A-18B 161704 AND UP; ALSO 161354 THRU 161360 AFTER F/A-18 AFC 27.

8 161353 THRU 161359 BEFORE F/A-18 AFC 19.

9 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 19.

10 161925 AND UP; ALSO 161353 THRU 161924 AFTER F/A-18 AFC 57.

11 161353 THRU 161965.

12 161966 AND UP.

13 161353 THRU 161987 BEFORE F/A-18 AFC 48.

14 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 48.

15 F/A-18B 161704 AND UP.

16 F/A-18B 161354 THRU 161360.

17 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74.

18 ON 161945 AND UP; ALSO 161353 THRU 161944 WHEN AIRCRAFT GUIDED MISSILE LAUNCHER LAU-116/A P/N 74A730301-1009 OR 1010 (AAC 774) IS INSTALLED.

19 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

20 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

21 161353 THRU 163175 AFTER F/A-18 AFC 292.

Figure 1. Stores Management System Locator (Sheet 34)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

TABLES - REFERENCE

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
AGM-45 Shrike Missile Seeker Head Types and Armament Computer Fuze Codes, Table 13	28
A/G Ready Status - Bombs/Mines/Rockets, Table 9	16
A/G Ready Status - Gun/Missiles, Table 10	17
Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays, Table 1	2
Armament Computer Weapon Insertion Panel Store Codes and Weapon Display for Stations 1 and 9, Table 2	8
Conventional Weapon Delivery/Fuse Option, 161353 THRU 163175 AFTER AFC 253 OR AFC 292, Table 11	18
Conventianal Weapon Delivery/Fuse Option, 161353 THRU 163175 BEFORE AFC 253 OR AFC 292, Table 12	24
Conventional Weapon/Fuse Compatibility, Table 7	14
Fuze Types and Armament Computer Fuze Codes, Table 3	9
Introduction	1
Priority Weapon Station Release Sequence, Table 4	9
Quantity, Multiple and Interval Override, Table 8	15
SMS/CLC/WPNS BIT Status Message Displays, Table 6	13
System Maintenance Codes, Table 5	11

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The tables in this work package support the description and operation for the stores management system (SMS). These tables also are used to interpret signal functions and SMS displays.

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
00	00	NONE (BLANK)	No Store (Empty Station)
01	01	FUEL	Fuel Tank
02	02	RET	MK-20 Rockeye II Bomb, MOD 7, With Thermal Protection
03	03	RE	MK-20 Rockeye II Bomb, MOD 8, Without Thermal Protection
04	04	APAM	CBU-59A/B APAM Bomb
05	05	GATR	GATOR Mine (CBU-78B)
06	06	76	MK-76 Practice Bomb (Conventional Use)
07	07	106	MK-106 Practice Bomb (Conventional Use)
08	08	48	BDU-48/B Practice Bomb (Conventional Use)
09	09		Not Applicable
10	10		Not Applicable
11	11		Not Applicable
12	12		Not Applicable
13	13	84	MK-84 Bomb, Without Thermal Protection
14	14	84 T	MK-84 Bomb, With Thermal Protection
15	15	84LG	MK-84 Laser Guided Bomb, With/Without Thermal Protection
16	16	83B	MK-83 Blunt Nose Bomb, Without Thermal Protection
17	17	83P	MK-83 Pointed Nose Bomb, Without Thermal Protection
18	18	83BT	MK-83 Blunt Nose Bomb, With Thermal Protection
19	19	83PT	MK-83 Pointed Nose Bomb, With Thermal Protection
20	20	80	BLU-80 Bigeye Bomb 10

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays (Continued)

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
21	21	5 77	MK-77 Fire Bomb.
22	22	83CT	MK-83 High Drag Bomb (BSU-85) Without Thermal Protection
23	23	83LG	MK-83 Laser Guided Bomb, With/Without Thermal Protection
24	24	82B	MK-82 Blunt Nose Bomb, Without Thermal Protection
25	25	82P	MK-82 Pointed Nose Bomb, Without Thermal Protection
26	26	82BT	MK-82 Blunt Nose Bomb, With Thermal Protection
27	27	82PT	MK-82 Pointed Nose Bomb, With Thermal Protection
28	28	82X	MK-82 Snakeye Bomb, With In-Flight-Select Retarded/Unretarded Fin, Without Thermal Protection
29	29	82XT	MK-82 Snakeye Bomb, With In-Flight-Select Retarded/ Unretarded Fin, With Thermal Protection
30	30	82YT	MK-82 High Drag (BSU-86) With In-Flight-Select Retarded/Unretarded Fin, With/Without Thermal Protection
5 31	31	82SB	MK-82 With BSU33 Conical/Tail-Fin, Blunt Nose Bomb, With Thermal Protection
5 32	32	82SP	MK-82 With BSU33 Conical/Tail Fin, Pointed Nose Bomb, With Thermal Protection
33	33	82LG	MK-82 Laser Guided Bomb (GBU-12B/B), With/Without Thermal Protection
34	34	60	MK-60 Captor Mine (2000 lb Class)
6 35	35	62XO	MK-62 EX-16 Mine, MOD 0, EX-16 Fin, With Thermal Protection
36	36	62TO	MK-62 Quickstrike Mine, MOD 0, With Thermal Protection
38	38	62T2	MK-62 Quickstrike Mine, MOD 2 or 3, With Thermal Protection
40	40	63TF	MK-63 Quickstrike Mine, MOD 0 (MAU-91A/B Fin), With Thermal Protection

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays (Continued)

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
42	42	63TC	MK-63 Quickstrike Mine, MOD 0 (MK-12 Tail), With Thermal Protection
44	44	63T2	MK-63 Quickstrike Mine, MOD 2 or 3 (MK-12 Tail), With Thermal Protection
46	46	64T	MK-64 Quickstrike Mine, MOD 0, 2, or 3 (MK-11 Tail) With Thermal Protection
47	47	65	MK-65 Quickstrike Mine, (2000 lb Class) MOD 0, 1, 2, or 3 (1 Second Delay)
48	48	N76 10	MK-76 Practice Bomb
49	49	N106 10	MK-106 Practice Bomb
50	50	N48 10	BDU-48 (Bomb Dummy Unit)
51	51	N20 10	BDU-20C/BDU-12 (Bomb Dummy Unit)
52	52	N36 10	BDU-36C (Bomb Dummy Unit)
53	53		Spare
54	54	EWPD 9	ALQ-167 EW Pod
55	55	GB24 9	GBU-24B/B Thermal Protected, Hardened Target Penetrator, Laser Guided Bomb
56	56		Spare
57	57	N57 10	N57/BDU-11 (Tactical Weapon/Bomb Dummy Unit)
58	58	N61 10	B-61, MOD 0, 1, 2, or 5 (Tactical Weapon)
4 59	59		AGM-45A/B Shrike Missile 10
60	60		Not Applicable
61	61		Not Applicable
62	62	HP 10 HPC, HPD	AGM-84C/D Harpoon Missile (Air To Ground)

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays (Continued)

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
63	63	THP	AGM-84C/D Harpoon Missile (Air To Ground) (Training)
64	64	HARM	AGM-88 HARM Missile (Air to Ground)
65	65	MAV	AGM-65E Maverick Missile (Air to Ground)
66	66	MAVF [9]	AGM-65F Maverick Missile (Air to Ground) [9]
[5] 67	67	SLAM	AGM-84E SLAM Missile (Air To Ground)
6A	6A	MAVG [9]	AGM-65G Maverick Missile IR (Infra-RED) (Air to Ground) [9]
[5] 70	70	TSLM	ATM-84E Telemetry SLAM Missile (Air To Ground) (Training)
72	72	61S	LAU-61 A/A Rocket Launcher (2.75 IN. Rockets) With Launcher Switch In Singles Setting
73	73	61R	LAU-61 A/A Rocket Launcher With Launcher Switch In Ripple Setting
74	74	68S	LAU-68 B/A Rocket Launcher (2.75 IN. Rockets) With Launcher Switch In Singles Setting
75	75	68R	LAU-68 B/A Rocket Launcher With Launcher Switch In Ripple Setting
76	76	10S	LAU-10 D/A Rocket Launcher (5 IN. Rockets) With Launcher Switch In Singles Setting
77	77	10R	LAU-10 D/A Rocket Launcher With Launcher Switch In Ripple Setting
78	78	36	MK-36 Destructor Mine, MK-15, MOD 4 Fin, Without Thermal Protection
79	79	36T	MK-36 Destructor Mine, MK-15, MOD 4A Fin, With Thermal Protection
[1] 80	80	9M	AIM-9M Sidewinder Missile (Air To Air)
[1] 80	82	TST [9]	AIM-9 Sidewinder Missile End to End Test (ETET) [9]
[1] 81	81	9L	AIM-9L Sidewinder Missile (Air to Air)
[1] 81	82	TST [9]	AIM-9 Sidewinder Missile End to End Test (ETET) [9]
[1] 82	82	TST	AN/ASM-464 AIM-9 Missile Test Set
83	83		Spare

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays (Continued)

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
84	84	7F	AIM-7F Sparrow Missile (Air to Air)
2 84	9F 9 / 100 10 /	7M	AIM-7M Sparrow Missile (Air to Air)
6 84	AO 9 / 100 10 /	7H	AIM-7M-H Build Sparrow Missile (Air to Air)
85	85	40F	MK-40 Destructor Mine, MAU-91A/B Fin, Without Thermal Protection
86	86	40TF	MK-40 Destructor Mine, MAU-91A/B Fin, With Thermal Protection
87	87	40C	MK-40 Destructor Mine, MK-12 Tail, Without Thermal Protection
88	88	40TC	MK-40 Destructor Mine, MK-12 Tail, With Thermal Protection
89	89	41	MK-41 Destructor Mine, MK-11, MOD 0 Tail, Without Thermal Protection
90	90	41T	MK-41 Destructor Mine, MK-11, MOD 0 Tail, With Thermal Protection
91	91	52	MK-52 Bottom Mine (1000 lb class), Faired
92	92	55	MK-55 Bottom Mine (2000 lb Class), Faired
93	93	56	MK-56 Moored Mine (2000 lb Class), Faired
94	94		Not Applicable
95	95		Not Applicable
96	96		Not Applicable
97	97		Not Applicable
5 98	98	48M	BDU-48 Practice Bomb (Mining Practice)
99	99	BAG 9	CNU-188 Baggage Carrier
9A	9A	CLP 9	Recce Data Link Centerline Pod (RDCLP)
3		255	Gun
9	A3	AB	AIM-120 AMRAAM Missile - Warhead (Air to Air) (SIM Mode Only)
9 B0	B0	D9	AIM-9 Blue Tube (Dummy Aim-9)
9 B1	B1	TP	Training Pod

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays (Continued)

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
9 B2	B2	EDM,RDLP	EDM Recce Data Link Centerline Pod.
9 C0	F0	JDAM	Empty JDAM Training Station
9 C1	F0	JSOW	Empty JSOW Training Station
9 F0	F0	DL13	Guided Weapon Control - Monitor Set AN/AWW-13 (Advanced Date Link Pod)
9 F0	F0	AW96	AN/AWM-96 Weapon Control Test Set
9 F0	F0	AA, AB, or AC	AIM-120 AMRAAM Missile - Warhead (Air to Air)
9 F0	F0	AT, BT, or CT	AIM-120 AMRAAM Missile - Telemetry (Air to Air)
9 F1	F0	ACE	ACE-II Pod
9 F0	F0	JSA, JSB, JSC	AGM-154A/B/C Joint Stand Off Weapon (JSOW) (Air to Ground)
9 F0	F0	TJSA, TJSB, TJSC	AGM-154A/B/C Joint Stand Off Weapon (JSOW) (Air to Ground) (Telemetry Kit)
9 F0	F0	J-84, J109	GBU-31 Joint Direct Attach Munition (JDAM) (Air to Ground)
9 F0	F0	SLMR	AGM-84H Stand Off Land Attack Missile Expanded Response (SLAM ER) (Air to Ground)
9 F0	F0	TSLR	ATM-84H Stand Off Land Attack Missile Expanded Response (SLAM ER) (Telemetry Round)
9 F3	F0	CM	Captive Air Training Missile

NOTES

1 Weapon stations 2 and 8. Use Table 2 for weapon stations 1 and 9.

2 Code 84 is selected for AIM-7F, AIM-7M and AIM-7M H-Build Missile. AIM-7M is identified by the missile designator as code AO 9 /100 10 and sent to MC system. AIM-7M H-Build missiles are first inventoried as AIM-7M, then must be upgraded to H-Build missile from the DDI. Code 9F is then sent to the MC system.

3 No provisions exist on weapon insertion panel to select gun code. Code 255 is selected when A/A weapon select switch is set to gun (aft) or when A/G gun is selected using the stores display pushbutton switch.

4 Refer to table 13 for seeker head types and fuze codes.

5 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

6 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000).

Table 1. Armament Computer Weapon Insertion Panel Store Codes and Weapon Displays (Continued)

Thumb-wheel Switch Setting	Station/ Selected Weapon Code	Display	Store Description
NOTES (Continued)			
7. Thumbwheel switches each have 16 positions, 0 thru 9 and A thru F. There are 256 possible codes for each weapon station. Unlisted codes are unassigned.			
8. Weapon insertion code F3 applies to pylon station only. No provisions exist on weapon insertion panel to select weapon insertion code for fuselage stations. Captive air training missiles on station 4 or 6 will cause a load fault to be displayed. CATM 4 or CATM 6 displayed on AIM-120 DATA freeze sublevel allows updating of the fuselage station and clears the load fault for that station.			
9 162394 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.			
10 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.			

Table 2. Armament Computer Weapon Insertion Panel Store Codes and Weapon Display for Stations 1 and 9

THUMB-WHEEL SWITCH SETTING	STATION/ SE-LECTED WEAPON CODE	STATION 1 (LEFT WING)		STATION 9 (RIGHT WING)	
		DISPLAY	WEAPON	DISPLAY	WEAPON
0	-		Empty		Empty
1	1	9M	AIM-9M	9M	AIM-9M
2	2	9L	AIM-9L	9L	AIM-9L
3	3	9M	AIM-9M	9L	AIM-9L
4	4	9L	AIM-9L	9M	AIM-9M
5	5	TST	AN/ASM-464 AIM-9 Missile Test Set		Empty
6	6		Empty	TST	AN/ASM-464 AIM-9 Missile Test Set
7	119	D9	Dummy AIM-9	D9	Dummy AIM-9
8	-		(Not Used)		(Not Used)
9	9	TST	End to end test adapter	TST	End to end test adapter

Table 3. Fuze Types and Armament Computer Fuze Codes

NOSE FUZE	CODE		TAIL FUZE	CODE
(Spare)	0		(Spare)	0
M904-6	1		MK344	1
M904-10	2		MK376	2
MK43(E)	3		[1] FMU-139	3
MK43(M)	4		(Spare)	4
MK339	5		MK346	5
Mechanical (Other Than MK904 MK339, or DSU-30)	6		Mechanical (Other Than MK 346)	6
FMU140	7		[2] FMU-139	7
M904-2	8		[2] FMU-152	8
M904-4	9		[2] FMU-143	9
DSU-30/33	B			

NOTES

[1] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

[2] 162394 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 4. Priority Weapon Station Release Sequence

WEAPON	WEAPON STATION								
	1	2	3	4	5	6	7	8	9
HARM AGM-88		2	4				3	1	
Maverick AGM-65		2	4				3	1	
Sidewinder AIM-9 [3]	5	1 Left 3 Right	8 Left [7] 10 Right [7]				7 Right [7] 9 Left [7]	2 Right 4 Left	6
Sparrow AIM-7 [2] [5]		2	4 [7]	4 [6] 6 [7]		3 [6] 5 [7]	3 [7]	1	
BRU-33 Bombs/Mines (Two)		2 Left 7 Right	4 Left 9 Right		1 Right 6 Left		5 Right 10 Left	3 Right 8 Left	
BRU-32 Bombs/ Mines (Single)		2	4		1		5	3	
[1]		1 Right	3 Right				4 Right	2 Right	

Table 4. Priority Weapon Station Release Sequence (Continued)

WEAPON	WEAPON STATION								
	1	2	3	4	5	6	7	8	9
Rockets		1 Left	3 Left				4 Left	2 Left	
Multiple Ejection Rack (MER) (practice bombs only)		2 7 12 16 20 24	4 9 14 18 22 26		1 6 11		5 10 15 19 23 27	3 8 13 17 21 25	
Harpoon AGM-84		2	4				3	1	
[4] SLAM AGM-84E		2	4				3	1	
Shrike [6] AGM-45		1	3				4	2	
Improved Triple Ejection Rack (ITER) BRU-42		2 7 12	4 9 14		1 6 11		5 10 15	3 8 13	
[7] JSOW AGM-154		2	4				3	1	
[7] JDAM GBU-31		2	4				3	1	
[7] SLAM ER AGM-84H		2	4				3	1	
[78] AMRAAM AIM-120		2 Left 4 Right	6 Left 8 Right	10		9	5 Right 7 Left	1 Right 3 Left	

NOTES

[1] The left launchers are fired after right launchers are empty.

[2] ON 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, AIM-7M automatically selected before AIM-7F.

[3] ON 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, AIM-9M automatically selected before AIM-9L.

[4] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

[5] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) AIM-7M H-BUILD is automatically selected first, AIM-7M selected next, than AIM-7F.

[6] 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[7] 162394 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

[8] Priority launch sequence based upon all missiles having equal capability. If station 3 left and 7 right has missile present (any missile), then station 2 right and 8 left are shipped in the priority sequence. AIM-120C automatically selected first, AIM-120B selected next , then AIM-120A.

Table 5. System Maintenance Codes

Maintenance Code	1 Failure
006	Armament Computer CP-1342/AYQ-9(V) terminal fail.
017	Command Launch Computer CP-1001( )/AWG terminal fail.
070	Armament Computer CP-1342/AYQ-9(V) fail.
071	Left Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) fail.
072	Left Wing Outboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
073	Left Wing Inboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
074	Left Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V) fail.
076	Right Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V) fail.
077	Right Wing Inboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
078	Right Wing Outboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
079	Right Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) fail.
080	Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V) fail.
081	Electrical Fuzing Power Supply PP-6419/AWW-4(V) fail.
082	EMERG JETT Switch fail.
083	SELECT JETT Switch fail.
084	GUN/A/A Missile Trigger fail.
085	A/G Weapon Release Switch fail.
375	Command Launch Computer CP-1001( )/AWG fail.
376	CLC/SMS Interface fail.
377	CLC/ALR-67 Interface fail.
378	Station 2 HARM Missile fail.
379	Station 3 HARM Missile fail.
380	Station 7 HARM Missile fail.

Table 5. System Maintenance Codes (Continued)

Maintenance Code	[1] Failure
381	Station 8 HARM Missile fail.
382	Station 2 HARM Missile Interface Degrade.
383	Station 3 HARM Missile Interface Degrade.
384	Station 7 HARM Missile Interface Degrade.
385	Station 8 HARM Missile Interface Degrade.
390	Weapon Station 1 fail.
391	Station 2 left AMRAAM fail.
392	Station 2 right AMRAAM fail.
393	Station 3 left AMRAAM fail.
394	Station 3 right AMRAAM fail.
396	Station 4 right AMRAAM fail.
400	Station 6 right AMRAAM fail.
401	Station 7 left AMRAAM fail.
402	Station 7 right AMRAAM fail.
403	Station 8 left AMRAAM fail.
404	Station 8 right AMRAAM fail.
405	Weapon Station 9 fail.
C04	Armament computer CP-1342/AYQ(V) contains classified data.
C05	Weapon contains classified data.

NOTES

[1] F/A-18A 161353 THRU 163175 AFTER AFC 253 OR AFC 292, READ MMP CODES FROM COCKPIT DDI ONLY.

Table 6. SMS/CLC/WPNS BIT Status Message Displays

DISPLAY	DESCRIPTION	SMS	CLC	WPNS	AWW4
NOT RDY	System not turned on, system cannot be turned on or system not installed.	X	X	[4] X	X
SF TEST	Self test. Automatic initiated (power up) BIT.	X			
IN TEST	System initiated BIT or maintenance BIT in test.	X	X	X	X
PBIT GO [6]	No BIT failures exist, but BIT has not been run on all systems.	X	X	X	X
GO	All systems, BIT test complete with no failures.	X	X	X	X
OP GO, OPRNL GO [5]	Displayed when stores management system failure has been detected that does not affect the system ability to deliver loaded weapons.	X			
MUX FAIL NO GO [5]	System on but not communicating on avionic mux channel with mission computer system.	X	X		
DEGD	System failure detected and system operation is degraded.	X	X	X	X
DEGD +OVHRT, DEGD OH [5]	System failure detected and system component overheated.	X			
OVHRT, OH [5]	System component overheated.	X			
RESTRT	Restart BIT. System did not respond to BIT command or did not complete BIT in allowed time.	X	X	X	X

NOTES

1. BIT Control Display — Only one status (highest priority) displayed under STORES.
2. STORES BIT Format — SMS, AWW4, WPNS, and CLC status messages displayed.
3. SMS and AWW4 BIT not available in flight.

[4] NOT RDY displayed if CLC and SMS are not communicating on the avionics MUX or if no smart weapons (HARM, AMRAAM, SLAM, SLAM ER, JSOW, JDAM, Harpoon or AWW-13) are loaded on aircraft.

[5] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[6] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 7. Conventional Weapon/Fuze Compatibility

Fuze	MK82 (Store Codes 28 & 29)	MK82, MK83, MK76, MK106, BDU-48	MK84	Laser (MK82 MK83 MK84)	CBU59, MK20, CBU-78	BLU80
NOSE						
M904	X	X	X			
MK43 [1]	X	X	X			
MK339					X	
Mechanical (other than M904 OR MK339)	X	X	X			
FMU140					X	X
DSU-30/B [1,4]	X	X	X			
None [2]	X	X	X	X	X	X
TAIL						
MK344 [3]	X	X	X	X		
MK346 [4]		X				
MK376	X	X	X	X		
FMU139	X	X	X	X		
Mechanical (Other Than MK 346)		X	X	X		
None [2]	X	X	X	X	X	X

NOTES

[1] MK43 Requires use of MK344, MK376 or FMU139 Tail Fuze.

[2] If code is set for both nose and tail, the SMS will release the weapon unarmed.

[3] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[4] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 8. Quantity, Multiple and Interval Override

Parameter	Override Condition	Override Value
QTY	At least one weapon available for release (loaded and not HUNG), and value in program exceeds the number of weapons available.	Equal to the number of weapons available.
MULT	At least one weapon available for release, and either the multiple in program exceeds the number of stations available to participate in the release, or it exceeds the quantity value being used (quantity in program or, if overridden, the override value).	Equal to the number of stations available to participate in the release, or to the quantity being used, whichever is less.
MULT	Selected bomb has MK43 proximity element installed.	1 (salvo or ripple salvo releases are not allowed).
2 INT	Selected bomb has MK43 proximity element installed, and interval in program is less than 100 milliseconds (manual mode).	100 milliseconds.
2,3 INT	MK82 Snakeye selected in high drag (retarded) configuration, and either interval in program is less than 150 milliseconds for two or more stations, or less than 200 milliseconds from same station (manual mode).	100 milliseconds for two or more stations, and 100 milliseconds, from same station.
2,4 INT	MK83CT or MK82 Snakeye selected in high drag (retarded) configuration, and either interval in program is less than 100 milliseconds for two or more stations, or less than 100 milliseconds from same station (manual mode).	100 milliseconds for two or more stations, and 100 milliseconds, from same station.
2,3 INT	Selected bomb loaded on BRU-32 racks only, and interval in program is less than 20 milliseconds (manual mode).	40 milliseconds.
2,4 INT	Selected bomb loaded on BRU-32 racks only, and interval in program is less than 40 milliseconds (manual mode).	40 milliseconds.
2,3 INT	At least one of the selected bombs is loaded on VER or MER and either interval in program is less than 30 milliseconds for two or more stations, or less than 60 milliseconds from same station (manual mode).	40 milliseconds for two or more stations, and 60 milliseconds from same station.
2,4 INT	At least one of the selected bombs is loaded on VER or MER and either interval in program is less than 40 milliseconds for two or more stations, or less than 60 milliseconds from same station (manual mode).	40 milliseconds for two or more stations, and 60 milliseconds from same station.
2,4 INT	Selected Weapon is mine and interval in program is less than 100 milliseconds.	100 milliseconds.

Table 8. Quantity, Multiple and Interval Override (Continued)

Parameter	Override Condition	Override Value
[2,4] INT	MK77 selected and interval in program is less 50 milliseconds for two or more stations or less than 100 milliseconds from same station or release multiple greater than 1.	50 milliseconds for 2 or more stations and 100 milliseconds from same station.
[2,4] INT	GBU-24B/B selected and interval in program is less than 300 milliseconds.	300 milliseconds.

NOTES

1. Nonstandard Abbreviations: See WP002 01.

[2] Applies in all delivery modes, but is not indicated on display in AUTO, FD, and CCIP modes, since interval in these modes is programmed in feet and controlled by the mission computer system.

[3] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[4] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 9. A/G Ready Status - Bombs/Mines/Rockets

System/Weapon Function	Conventional and Laser Guided Bombs	Rockets	Mines
Priority Station (Weapon) Selected	X	X	X
A/G Master Mode Selected	X	X	X
Program Complete	X		X
Master Arm/ Simulation Mode Selected	X	X	X
Weapon Uncaged			
Power Changeover (PCO)			

Table 10. A/G Ready Status - Gun/Missiles

System/Weapon Function	SLAM	Gun	Harpoon	Maverick	Harm	JDAM [5]	JSOW [5]	SLAM ER [5]	Shrike [4]
Priority Station (Weapon) Selected	X	X	X	X	X	X	X	X	X
A/G Master Mode Selected	X	X	X	X	X	X	X	X	
Master Arm/ Simulation Mode Selected	X	X	X	X	X	X	X	[3] X	X
Weapon Uncaged				X					
Scan (MAV E) or Track (MAV F)				X					
Missile Ready Received	[2] X		[2] X		X	X	X	X	X
Harm Mode Selected or SP Pullback and not Override					X				
Last Round or Rounds Limit Indication Not Detected		X							
Launcher Timeout Complete				X					
A/G or NAV Master Mode Selected									X
Target Designated - Range and Bearing Launch Only (MC Launch Inhibit Not Set)				X					
Good Update Status From Missile				X					
Priority Station Status is RDY, LOS, (WDEGD), or HUNG with Auxiliary Release Enable set before Auxiliary Cartridge Fire applied.	X			X			X	X	
Target Designated - Pre-Briefed mode only									
Priority Station unlocked (Except Simulation Mode)	X			X					
All Gear Up and Locked	X		X						X

Table 10. A/G Ready Status - Gun/Missiles (Continued)

System/Weapon Function	SLAM	Gun	Harpoon	Maverick	Harm	JDAM 5	JSOW 5	SLAM ER 5	Shrike 4
Minimum Transfer Alignment Data received							X	X	
Minimum Environmental Data received							X	X	

NOTES

1. Nonstandard Abbreviations and Symbols, See WP002 01.

2 Does not apply to Harpoon or SLAM LOS missiles.

3 JSOW will not display ready status with SIM mode selected.

4 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

5 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 11. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292)

Weapon Code 3	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
20	7	0, 5, 7, 8, 9, A, B, C, D E, F	OFF MIX				tail
02, 03, 04, or 05	5	0, 5, 7, 8, 9, A, B, C, D, E, F	OFF PRI OPT				tail nose and tail
	7	0, 5, 7, 8, 9 A, B, C, D, E, F	OFF PRI VT				nose and tail nose
5 06, 07, 08							
13, 14	1, 2, 6, 8, OR 9	0, 5, 7, 8, 9, A, B, C, D, E	OFF NOSE				nose
		2	OFF NOSE	OFF INST DLY 1 DLY 2		+195 –195 –300	nose

Table 11. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
		3	OFF NOSE	OFF INST DLY 1 INST DLY 1 INST DLY 1	 dive dive level level retarded retarded	 –300 –195 +300 +195 +300 +195	 nose
		6	OFF NOSE TAIL N/T				 nose tail nose and tail
	3	2		OFF VT INST DLY 1 DLY 2		 +300 +195 –195 –300	
		3		OFF INST DLY 1 VT INST DLY 1 VT INST DLY 1 VT	 dive dive dive level level level retarded retarded retarded	 –300 –195 +300 –300 +195 +300 +300 +195 +300	
	4	2		OFF VT VT 1 VT 2		 +300 –195 –300	
		3		OFF VT VT1 VT VT1 VT VT1	 dive dive level level retarded retarded	 –300 –195 +300 +195 +300 +195	

Table 11. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
	B	2		OFF INST VT VT 1 DLY 2		 +300 +195 –195 –300	
		3		OFF INST VT 1 INST VT1 INST VT1	 level level dive dive retarded retarded	 +300 +195 –300 –195 +300 +195	
16, 17, 18, 19, 24, 25, 26, 27, 31, 32	1, 2, 6, 8, or 9	0, 5, 7, 8, 9, A, B, C, D, E, F	OFF NOSE				nose
		2	OFF NOSE	OFF INST DLY1 DLY 2		 +195 –195 –300	nose
		3	OFF NOSE	OFF INST DLY 1 INST DLY 1 INST DLY 1	 dive dive level level retarded retarded	 –300 –195 +300 +195 +300 +195	nose
		5	OFF IM- PACT LONG DLY				nose tail
	3	2		OFF VT INST DLY 1 DLY 2		 +300 +195 –195 –300	

Table 11. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
		3		OFF			
				VT	level	+300	
				INST	level	–300	
				DLY 1	level	+195	
				VT	dive	+300	
				INST	dive	–300	
				DLY 1	dive	–195	
				VT	retarded	+300	
				INST	retarded	+300	
				DLY 1	retarded	+195	
	4	2		OFF			
				VT	dive	+300	
				VT 1	dive	–195	
				VT 2	dive	-300	
		3		OFF			
				VT	dive	–300	
				VT 1	dive	–195	
				VT	level	+300	
				VT 1	level	+195	
				VT	retarded	+300	
				VT 1	retarded	+195	
	B	2		OFF			
				INST		+300	
				VT		+195	
				VT 1		–195	
				DLY 2		–300	
		3		OFF			
				INST	level	+300	
				VT 1	level	+195	
				INST	dive	–300	
				VT 1	dive	–195	
				INST	retarded	+300	
				VT 1	retarded	+195	
15, 23, or 33	0, A, C, D, E, F	2		OFF			
				INST		+195	
				DLY 1		–195	
				DLY 2		–300	

Table 11. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
		3		OFF INST DLY 1 INST DLY 1 INST DLY 1	 level level dive dive retarded retarded	 +300 +195 –300 –195 +300 +195	
		6	OFF TAIL				tail
22, 28, 29, or 30	1, 2, 8, OR 9	0, 5, 7, 8, 9, A, B, C, D, E, F	OFF NOSE				nose
		2	OFF NOSE	OFF INST DLY 1 DLY 2		 +195 –195 –300	nose
		3	OFF NOSE	OFF INST DLY 1 INST DLY 1 INST DLY 1	 dive dive level level retarded retarded	 –300 –195 +300 +195 +300 +195	nose
	3	2		OFF VT INST DLY 1 DLY 2		 +300 +195 –195 –300	
		3		OFF INST DLY 1 VT INST DLY 1 VT INST DLY 1 VT	 dive dive dive level level level retarded retarded retarded	 –300 –195 +300 –300 +195 +300 +300 +195 +300	

Table 11. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code [4]		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
[3]	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
	4	2		OFF VT VT 1 VT 2		 +300 –195 –300	
		3		OFF VT VT 1 VT VT 1 VT VT 1	 dive dive level level retarded retarded	 –300 –195 +300 +195 +300 +195	
	B	2		OFF INST VT VT 1 DLY 2		 +300 +195 –195 –300	
		3		OFF INST VT 1 INST VT 1 INST VT 1	 level level dive dive retarded retarded	 +300 +195 –300 –195 +300 +195	

NOTES

1. Nonstandard Abbreviations and Symbols, See WP002 01.
2. If no fuze code is entered on the weapon insertion panel, the armament computer will release the weapon unarmed.

[3] Armament Computer Weapon Insertion Panel Store Codes and Weapon Display, This WP.

[4] Fuze Types and Armament Computer Fuze Codes, This WP.

[5] Conventional practive bombs, compatible with all fuze codes.

Table 12. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, Before F/A-18 AFC 253 or F/A-18 AFC 292)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
20	7	0, 5, 7, 8, 9	OFF MIX				tail
02, 03, or 04	5	0, 5, 7, 8, 9	OFF PRI OPT				 tail nose and tail
	7	0, 5, 7, 8, 9	OFF PRI VT				 nose and tail nose
06, 07, 08 13, 14	1, 2, 6, 8 or 9	0, 5, 7, 8, 9	OFF NOSE				 nose
16, 17 18, 19, 22, 24, 25 26, 27, 28, 29, 30	5	1	OFF NOSE	OFF INST DLY 1 DLY 2	 dive dive dive	 +195 –195 –300	 nose
	5	2	OFF NOSE	OFF INST DLY 1 DLY 2	 level level level	 +195 –195 –300	 nose
	6	3	OFF NOSE	OFF INST DLY 1 INST DLY 1	 dive dive level level	 –300 –195 +300 +195	 nose
		5	OFF INST LDLY				 nose tail
		6	OFF NOSE TAIL N/T				 nose tail nose and tail
	3	1		OFF VT INST DLY 1 DLY 2	 dive dive dive dive	 +300 +195 –195 –300	

Table 12. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, Before F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
	4	2		OFF VT INST DLY 1 DLY 2	 level level level level	 +300 +195 –195 –300	
		3		OFF INST DLY 1 VT DLY 1	 dive dive level level	 –300 –195 +300 +195	
		1		OFF VT VT 1 VT 2	 dive dive dive	 +300 –195 –300	
		2		OFF VT VT 1 VT 2	 level level level	 +300 –195 –300	
		3		OFF VT VT 1 VT VT 1	 dive dive level level	 –300 –195 +300 +195	
	0	1		OFF INST DLY 1 DLY 2	 dive dive dive	 +195 –195 –300	
		2		OFF INST DLY 1 DLY 2	 level level level	 +195 –195 –300	
		3		OFF INST DLY 1 INST DLY 1	 dive dive level level	 –300 –195 +300 +195	
		5		OFF LDLY			tail

Table 12. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, Before F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
		6	OFF TAIL				tail
15,23 or 33	0	1 or 2		OFF INST DLY 1 DLY 2	 dive or level dive or level dive or level	 +195 –195 –300	
		3		OFF INST DLY 1 INST DLY 1	 level level dive dive	 +300 +195 –300 –195	
28,29,30 31 or 32	1,2,6,8, or 9	0,5,7, 8,9	OFF NOSE				nose
	5	1	OFF NOSE	OFF INST DLY 1 DLY 2	 dive dive dive	 +195 –195 –300	nose
	5	2	OFF NOSE	OFF INST DLY 1 DLY 2 INST DLY 1 DLY 2	 level level level ret ret ret	 +195 -195 –300 +195 –195 –300	nose tail tail tail
	6	3	OFF NOSE	OFF INST DLY 1 INST DLY 1 INST DLY 1	 dive dive level level ret ret	 –300 –195 +300 +195 +300 +195	nose tail tail
	3	1		OFF VT INST DLY 1 DLY 2	 dive dive dive dive	 +300 +195 –195 –300	

Table 12. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, Before F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
		2		OFF			
				VT	level	+300	
				INST	level	+195	
				DLY 1	level	–195	
				DLY 2	level	–300	
				VT	ret	+300	tail
				INST	ret	+195	tail
				DLY 1	ret	–195	tail
				DLY 2	ret	–300	tail
		3		OFF			
				INST	dive	–300	
				DLY 1	dive	–195	
				VT	level	+300	
				DLY 1	level	+195	
				VT	ret	+300	tail
				DLY 1	ret	+195	tail
	4	1		OFF			
				VT	dive	+300	
				VT 1	dive	–195	
				VT 2	dive	–300	
		2		OFF			
				VT	level	+300	
				VT 1	level	–195	
				VT 2	level	–300	
				VT	ret	+300	tail
				VT 1	ret	–195	tail
				VT 2	ret	–300	tail
		3		OFF			
				VT	dive	–300	
				VT 1	dive	–195	
				VT	level	+300	
				VT 1	level	+195	
				VT	ret	+300	tail
				VT 1	ret	+195	tail
	0	1		OFF			
				INST	dive	+195	
				DLY 1	dive	–195	
				DLY 2	dive	–300	

Table 12. Conventional Weapon Delivery/Fuze Option (EFFECTIVITY: 161353 thru 163175, Before F/A-18 AFC 253 or F/A-18 AFC 292) (Continued)

Weapon Code	Fuze Code 4		Fuze Options Displayed		Delivery	Electrical Fuzing	Mechanical Fuzing
3	Nose	Tail	Mech	Elec	Attitude	Output	Solenoid
		2		OFF			
				INST	level	+195	
				DLY 1	level	–195	
				DLY 2	level	–300	
				INST	ret	+195	tail
				DLY 1	ret	–195	tail
				DLY 2	ret	–300	tail
		3		OFF			
				INST	dive	–300	
				DLY 1	dive	–195	
				INST	level	+300	
				DLY 1	level	+195	
				INST	ret	+300	tail
				DLY 1	ret	+195	tail

NOTES

1. Nonstandard Abbreviations: See WP 002 01.
2. If no fuze code is entered on the weapon insertion panel, the armament computer will release the weapon unarmed.

3 Armament Computer Weapon Insertion Panel Store Codes and Weapon Display, This WP.
4 Fuze Types and Armament Computer Fuze Codes, This WP.
5 The M904 function time must be equal to or greater than 100 ms.
6 The M904 function time must be equal to or greater than the FMU-139 function delay time.

Table 13. AGM-45 Shrike Missile Seeker Head Types and Armament Computer Fuze Codes

MISSILE TYPE	SEEKER HEAD TYPE	MISSILE MOTOR TYPE	NOSE FUZE CODE	TAIL FUZE CODE	DIVE/LOFT CONFIG.	DISPLAY INDICATION (HUD AND ON DDI-STORES WINGFORM)
USN	-3	A	3	3	Dive	S3E
USN	-3	B	3	1	Dive	S3E
USN	-3	A	3	4	Loft	S3
USN	-3	B	3	2	Loft	S3
USN (G Bias Missile)	-3	A	3	7	Dive	S3E
USN (G Bias Missile)	-3	B	3	5	Dive	S3E

Table 13. AGM-45 Shrike Missile Seeker Head Types and Armament Computer Fuze Codes (Continued)

MISSILE TYPE	SEEKER HEAD TYPE	MISSILE MOTOR TYPE	NOSE FUZE CODE	TAIL FUZE CODE	DIVE/LOFT CONFIG.	DISPLAY INDICATION (HUD AND ON DDI-STORES WINGFORM)
USN (G Bias Missile)	-3	A	3	8	Loft	S3
USN (G Bias Missile)	-3	B	3	6	Loft	S3
USN	-3A	A	1	3	Dive	S3AE
USN	-3A	B	1	1	Dive	S3AE
USN	-3A	A	1	4	Loft	S3A
USN	-3A	B	1	2	Loft	S3A
USN (G Bias Missile)	-3A	A	1	7	Dive	S3AE
USN (G Bias Missile)	-3A	B	1	5	Dive	S3AE
USN (G Bias Missile)	-3A	A	1	8	Loft	S3A
USN (G Bias Missile)	-3A	B	1	6	Loft	S3A
USN	-4	A	4	3	Dive	S4E
USN	-4	B	4	1	Dive	S4E
USN	-4	A	4	4	Loft	S4
USN	-4	B	4	2	Loft	S4
USN (G Bias Missile)	-4	A	4	7	Dive	S4E
USN (G Bias Missile)	-4	B	4	5	Dive	S4E
USN (G Bias Missile)	-4	A	4	8	Loft	S4
USN (G Bias Missile)	-4	B	4	6	Loft	S4
USN	-6	A	6	3	Dive	S6E
USN	-6	B	6	1	Dive	S6E
USN	-6	A	6	4	Loft	S6
USN	-6	B	6	2	Loft	S6
USN (G Bias Missile)	-6	A	6	7	Dive	S6E
USN (G Bias Missile)	-6	B	6	5	Dive	S6E
USN (G Bias Missile)	-6	A	6	8	Loft	S6

Table 13. AGM-45 Shrike Missile Seeker Head Types and Armament Computer Fuze Codes (Continued)

MISSILE TYPE	SEEKER HEAD TYPE	MISSILE MOTOR TYPE	NOSE FUZE CODE	TAIL FUZE CODE	DIVE/LOFT CONFIG.	DISPLAY INDICATION (HUD AND ON DDI-STORES WINGFORM)
USN (G Bias Missile)	-6	B	6	6	Loft	S6
USN	-7	A	7	3	Dive	S7E
USN	-7	B	7	1	Dive	S7E
USN	-7	A	7	4	Loft	S7
USN	-7	B	7	2	Loft	S7
USN (G Bias Missile)	-7	A	7	7	Dive	S7E
USN (G Bias Missile)	-7	B	7	5	Dive	S7E
USN (G Bias Missile)	-7	A	7	8	Loft	S7
USN (G Bias Missile)	-7	B	7	6	Loft	S7
USAF	-9	A	9	3	1 Selectable	1 S9 or S9E
USAF	-9	B	9	1	1 Selectable	1 S9 or S9E
USAF	-9	A	9	4	1 Selectable	1 S9 or S9E
USAF	-9	B	9	2	1 Selectable	1 S9 or S9E
USAF (G Bias Missile)	-9	A	9	7	1 Selectable	1 S9 or S9E
USAF (G Bias Missile)	-9	B	9	5	1 Selectable	1 S9 or S9E
USAF (G Bias Missile)	-9	A	9	8	1 Selectable	1 S9 or S9E
USAF (G Bias Missile)	-9	B	9	6	1 Selectable	1 S9 or S9E
USAF	-0	A	0	3	1 Selectable	1 S10 or S10E
USAF	-0	B	0	1	1 Selectable	1 S10 or S10E

Table 13. AGM-45 Shrike Missile Seeker Head Types and Armament Computer Fuze Codes (Continued)

MISSILE TYPE	SEEKER HEAD TYPE	MISSILE MOTOR TYPE	NOSE FUZE CODE	TAIL FUZE CODE	DIVE/LOFT CONFIG.	DISPLAY INDICATION (HUD AND ON DDI-STORES WINGFORM)
USAF	-0	A	0	4	[1] Selectable	[1] S10 or S10E
USAF	-0	B	0	2	[1] Selectable	[1] S10 or S10E
USAF (G Bias Missile)	-0	A	0	7	[1] Selectable	[1] S10 or S10E
USAF (G Bias Missile)	-0	B	0	5	[1] Selectable	[1] S10 or S10E
USAF (G Bias Missile)	-0	A	0	8	[1] Selectable	[1] S10 or S10E
USAF (G Bias Missile)	-0	B	0	6	[1] Selectable	[1] S10 or S10E
USN or USAF	0,1,3,4, 6,7,9	A or B	2,5,8	2,5,8	Dive or Loft	SH. Indicates load fault.

NOTES

1. Selection of nose fuze codes 2, 5, or 8 are invalid and cause the SMS to indicate a load fault (SH).

[2] On Air Force missile seeker heads, E displayed if EASB option (pushbutton 3) is selected (boxed). E indicates dive configuration. Otherwise loft configuration.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

ARMAMENT MUX BUS DATA

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Armament Mux Bus Signal Description To/From Armament Computer, Table 1	2
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The armament mux bus data table in this work package is used to support principles of operation for the SMS.

Table 1. Armament Mux Bus Signal Description To/From Armament Computer

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
From	0	Mode Command	Terminal Test	Commands Encoder-Decoders to new mode of operation.	Read by status message
From 4	1	MK–82 serial data to store	AGM–84 serial data	Transmits serial data for Harpoon and SLAM	With auto receive
From 4	2	MK-82 serial data to store	AGM-84 serial data	Transmits serial data for Harpoon and SLAM	Without auto receive
From	3	English Bias Pitch (AIM-7)/ Elevation Slew (AGM-65)	Signal Value	12 bit output data	A/D select - message 10 Read - message 19
From	4	Roll Command (AIM-7)/ Azimuth Slew (AGM-65)	Roll Command/ Azimuth slew signal value	12 bit data output when AIM-7 BIT or AGM-65 BIT are not selected	
			Missile Designator	AIM-7M - Indicates when AIM-7M installed	
		AIM-7 BIT	AIM-7 BIT	Select Battery Arm/ Recycle for BIT test	A/D select - message 10
		AGM-65 BIT	AGM-65 BIT	Selects Azimuth and Elevation Gimbal for BIT test	Read - message 19
From 4	5	MK-82 serial data interface/ BIT control	AGM-84 A14 card	BIT and operational control of A-14 card	
From	6	Doppler Dogfight BIT (AIM-7)	Signal Value	16 bit data output Test value not significant	Select - message 12 Read - message 21
		4 Maverick Ship Track	AGM-65F Ship Track	Commands Maverick to ship track when set	
		4 Harpoon Deselect	AGM-84 Deselect Control	Commands Harpoon or SLAM deselect	
From	7	BIT Test Preparation Signals	AIM-7 Decoder Circuit Power	Turn on power to AIM-7 circuits.	

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			BIT Driver Test	Loads Inflight/Crab/Slave Enable circuits for testing	
		3 Output Driver (AIM-9)	LAU-127 Unlock Command 1	Sets Unlock Command 1 to LAU-127	
		4 Output Driver (AIM-120)	LAU-127 Unlock Command 1	Sets Unlock Command 1 to LAU-127	
		3 Output Driver (AGM-65)	Boresight command	Sets Maverick boresight to missile	
From	8	Discrete Driver Signals	Latching Relay On Driver	Controls weapon functions listed: AGM-65 - Select AIM-9 - Coolant Control ON BRU-33 - Nose Arm On BRU-32 - Nose Arm On	Read BIT - message 22
			Latching Relay Off Driver	Controls weapon functions listed: AGM-65 - Deselected AIM-9 - Coolant Control Off BRU-33 - Nose Arm Off BRU-32 - Nose Arm Off	Read BIT - message 22
			Redundant Driver 1	Controls weapon functions listed: AGM-65 - Launch AIM-7 - Motor Fire (pylon) Eject 1 and/or Eject 2 (fuselage) AIM-9 - Launch Command BRU-33 - Fire 1 or BRU-33 Left Rocket Fire BRU-32 - Fire 1 AGM-84 - Abort Command 2 AGM-84E - Abort Command 3 AGM-45 - Fire Ready 4 AIM-120 Umbilical Retract (Pylon only) Eject 1 and 2 (fuselage only)	Read BIT - message 22

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Redundant Driver 2	Controls weapon functions listed: AGM-65 - Dome Cover Power AIM-7 - Battery and Hydraulic Activate AIM-7 - Motor Fire (Fuselage) AIM-9 - Master Arm (pylon) 4 AIM-9 - LAU-127 Unlock Command 2 Launch Driver (wing tip) BRU-33 - Fire 2 or BRU-33 Right Rocket Fire BRU-32 - Fire 2 MER - Step and Fire AGM-88 - Missile Fire AGM-84 - Intent to Launch 2 AGM-84E -Intent to Launch 3 AGM-45 - Motor Fire 4 LAU-127 - Unlock Command 2 (Master Arm)	Read BIT - message 22
			Redundant Driver 3 4	Release Consent (AIM-120 and 1760 stores) AGM-65F - Field of view select	

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Driver 3	Controls weapon function list: AGM-65 - Station Select AIM-9 - Manual Uncage AIM-7- LAU-115 Solenoid Unlock Rockets - BRU-33 Rocket Select Rockets - BRU-33 Left/ Right Select (fuselage) 3 AGM-45 - Angle Gate Enable	Read BIT - message 20
			AIM-7 PD Command	Controls AIM-7 Pulse Doppler Command	Read BIT - message 22
			Driver 2	Controls weapon functions listed: AGM-65 - Slew Enable BRU-33 - Tail Arm BRU-32 - Tail Arm AGM-84 - Destruct Disable 2 AGM-84E - Destruct Disable 3 AGM-45 - EASB Active	Read BIT - message 22
			Code Data/ Sweep Control	Selects signals listed: AGM-65E - Cursor Control Field 4 AGM-65F Tracking contrast AIM-7 - Sweep Select	Read BIT - message 22
			Driver 1	Controls weapon functions listed: AGM-65 - Slave Enable AIM-7F - Inflight Switch AIM-7M - Altitude 3 Switch	Read BIT - message 22
			Altitude Switch 1	AIM-7	Read BIT - message 22
			Altitude Switch 2	AIM-7	Read BIT - message 22

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Launcher/Rack Lock	Lock BRU-32, BRU-33 LAU-115, and LAU-116	Read BIT - message 22
			Launcher/Rack Unlock	Unlocks BRU-32, BRU-33, LAU-115, and LAU-116	Read BIT - message 22
			Driver 4	Controls weapon functions listed: AGM-65 - Uncage AIM-9 - Right Missile Select (Outboard Pylon) BRU-33 Left/Right Select (pylon)	Read BIT - message 22
			Field of View Select	AGM-65	Read BIT - message 20
			4 Right Missile Select	AIM-120 Pylon Only	
From	9	Relay Activation	K1 (A10K1)	BRU-32 - Fire 1 (single bomb) AGM-84 - Fire 1 2 AGM-84E - Fire 1 Jettison - Fire 1	Read BIT - message 20
			K1 (A11K1)	AGM-84, (Deselect on/ Deselect off) 2 AGM-84E, (Deselect on/Deselect off)	
			K2 (A10K2)	BRU-32 - Fire 2 (single bomb) AGM-84 - Fire 2 2 AGM-84E - Fire 2 Jettison - Fire 2	Read BIT - message 20

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			K3 (A10K3)	Controls weapon functions listed: AGM-65 - Launch Command AIM-7 - Motor Fire (Pylon) AIM-9 - Launch Command BRU-33 - Fire 1 AGM-84 - Abort Command 2 AGM-84E - Abort Command 3 AGM-45 - Fire Ready 4 AIM-120 Umbilical Retract (Pylon Only)	Read BIT - message 20
			K4 (A10K4)	Controls weapon functions listed: 3 AGM-45 - Motor Fire AGM-65 - Dome Cover Fire AIM-7 - Battery and Hydraulic Activate (Pylon) AIM-9 - Master Arm 4 AIM-9 - LAU-127 Unlock Command 2 AGM-84 - Intent to Launch 2 AGM-84E - Intent to Launch BRU-33 - Fire 2 MER - Step and Fire AGM-88 - Missile Fire 4 AIM-120 - Master Arm (Pylon Only)	Read BIT - message 20
			K5 (A10K5)	BRU-32 - Auxiliary Fire	Read BIT - message 20
			K6 (A10K6)	BRU-32 - Lock Override	Read BIT - message 20

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			K9	AIM-7 - Eject 1 (fuselage)	Read BIT - message 20
				4 AIM-120 - Eject 1 (Fuselage)	
			K10	AIM-7 - Battery and Hydraulic Activate (fuselage)	Read BIT - message 20
			K11	AIM-7 - Eject 2 (fuselage)	Read BIT - message 20
				4 AIM-120 - Eject 2 (fuselage)	
			K12	AIM-7 - Motor Fire (fuselage)	Read BIT - message 20
				Field of View Select (AGM-45)	Read BIT - message 20
				4 Release Consent (AIM-120/1760 stores)	
From	10	A/D Conversion Select	A/D Select	Starts A/D conversion	Read A/D Data - message 19
			Chirp Mode	AIM-9	
			Apply Head Command to Missile	AIM-9	
			BIT Mode (AIM-9)	Selects BIT A/D Select Codes, this message	
			AIM-9 - Select	Gates acquisition lambda to A/D converter	
			AIM-7 - Select	Turns on 400HZ for AIM-7	
			AIM-9 - Select X	Selects X component of acquisition lambda	
			AIM-9 - Select Y	Selects Y component of acquisition lambda	
			A/D Select Codes	Selects weapons signals for A/D conversion listed:	

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
				3 AGM-45 - Direction Finder Azimuth 3 AGM-45 - Direction Finder Elevation AGM-65 - Azimuth Slew (BIT) AGM-65 - Elevation Slew (BIT) AGM-65 - Azimuth Gimbal (Operational) AGM-65 - Elevation Gimbal (Operational) AGM-65 - Horizontal Slave (BIT) AGM-65 - Vertical Slave (BIT) AGM-84 - Select Missile Enabled 2 AGM-84E- Select Missile Enabled AIM-9 - Acquisition lambda (Operational) AGM-65 - Launcher Ident (Operational, not used) AIM-7 - English Bias Pitch (BIT) AIM-7 - Roll Command (BIT) AIM-7 - Roll Gain/ English Bias Yaw (BIT) AIM-7 - Battery Arm (Operational) AIM-7 - Recycle (Operational)	

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
				AIM-7 - Dogfight/ Sweep Control (BIT) AIM-7 - True Airspeed/ Head Aim Pitch (BIT) AIM-7 - Range at Launch/ Head Aim Yaw (BIT) AIM-7- Missile Designation (Operational)	
			Power Supply BIT	BIT Encoder - Decoder power supply (Fuselage only). +15 VDC +12 VDC –15 VDC	
From	11	Sparrow/ Sidewinder Input Data	A1 and A2	Selects type of input data to be processed. Selects weapon signals listed: AIM-7 - Head Aim Pitch – True Airspeed AIM-7 - Head Aim Pitch + True Airspeed AIM-7 - Range at Launch – Head Aim Yaw AIM-7 - Range at Launch + Head Aim Yaw AIM-9 - Head Command X AIM-9 - Head Command X + Y AIM-9 - Head Command Y	Read - message 19 Selected - message 10

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Register Select	Selects register used for test and operational signal inputs. (AIM-7 Pylon and Fuselage, AIM-9 Pylon only)	
			BIT Select	Selects BIT inputs for processing	
			Signal Values	12 BIT output data selected by A1 and A2, this message	
From	12	English Bias Yaw (AIM-7)/ Horizontal Slave (AGM-65)	Simulated Doppler/ Dogfight BIT Select	Selects AIM-7 Doppler or Dogfight BIT.	Enables message 6. Read message 21.
			Roll Gain Switch.	AC Discrete (AIM-7)	
			Dogfight Command	AC Discrete (AIM-7)	
			Dogfight/ Sweep Control Termination	330 ohm load - no signal to missile (AIM-7)	
			Signal Value	12 bit output data, AIM-7 - English Bias Yaw AGM-65 - Horizontal Slave	Read - message 19 when selected by message 10.
From	13	Sweep Control(AIM-7)/ Vertical Slave (AGM-65)	Signal Value	12 bit output data. AIM-7 - Sweep Control AGM-65 - Vertical Slave	Read - message 19 when selected by messsage 10.
From	14	Sparrow Simulated Doppler	Signal Value	12 bit output data AIM-7 - Simulated Doppler	
From	16 [3]	Master Reset	Terminal Test	Prepares decoders Armament Bus Interface for Operation	Read by status message
From	17	[4] MK-82 Serial Data	AGM-84 Serial Data	Serial data from interface (store data)	Return data, in response to message 1, 2, or 5
		Gun Inputs No.1	Simulated Over Temperature Signal		

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Simulated Last Round Signal		
			Fail Safe Fire Enable Signal		
			Hydraulic Motor Solenoid Signal		
			Flow Regulator Solenoid Signal		
			Rounds Loaded Reset Signal		
From	18 Word 1	Gun Inputs No. 2	Fail Safe Motor Enable		
			Fire Voltage Signal		
			Gun Clear Signal		
			Execute BIT		
			BIT Select Field	Selects BIT functions listed:	
				Rounds Loaded Switch	
				Purge Scavenge	
				Flow Regulator Solenoid Driver	
				Hydraulic Motor Solenoid	
				Clear Solenoid Driver	
				3906.3 Hz Test (Magnetic speed sensor test)	
				976.6 Hz Test (Magnetic speed sensor test)	
				488.3 Hz Test (Magnetic speed sensor test)	
To	18 Word 2	Discrete Receiver Signals No. 2	Station Ident	Left/Right Inboard/ Outboard (encoder-decoder)	

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Station Ident (AIM-7)	Left/Right Outboard Pylon, Left/Right fuselage	
			AGM-84 Ident	AGM-84 Ident	
			2 AGM-84E Ident	2 AGM-84E - Ident	
			BIT 3	3 AGM-45 - Ident	BIT 3 and BIT 7 must be set for AGM-45 Ident to exist
			BIT 4	Controls weapon functions listed: MER - Station Transfer AGM-65 - Selected Missile Ready 4 LAU-127 - Store Present	
			BIT 15	AIM-9 - Ident Right (station 2 and 8)	
			Rockets Selected	Rocket Select	
			BIT 6	Controls weapon functions listed: AIM-7 - Motor Fire Enable (Fuselage) AGM-84 - Safe Indicator to SMS 2 AGM-84E - Safe Indicator to SMS	
			BIT 7	AGM-65 - Ident 3 AGM-45 - Ident 4 AWW-13 - Ident (centerline)	BIT 3 and BIT 7 must be set for AGM-45 Ident to exist
			BIT 9	AGM-88 Ident	

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
				[3] Shrike Umbilical - Ident	BIT 9 and BIT 10 must be set for Shrike Umbilical Ident to exist
			BIT 10	AIM-7 Ident	
				[3] Shrike Umbilical - Ident	BIT 9 and BIT 10 must be set for Shrike Umbilical Ident to exist
				[4] LAU-127 - Store present (fuselage)	
			BIT 11	[4] LAU-127 - Unlock Monitor	
				LAU-115, LAU-116, Unlock Monitor	
			BIT 12	[4] LAU-127 - Lock Monitor	
				LAU-115, LAU-116, Lock Monitor	
			BIT 13	AGM-84 Deselect	
				[2] AGM-84E Deselect	
			BIT 14	LAU-115 Ident	
To	19	Transmit A/D Data	Signal values	End of Conversion	Data out selected by message 10
			AGM-84 Missile Enable	Missile Enabled (Batt)	
			[2] AGM-84E Missile Enabled	Missile Enabled (Batt)	
			Missile Ident	AIM-7F/AIM-7M Missile designation Ident	
			Fuselage Power Supply	Power supply voltages	
To	20	Relay and Driver BIT	K1 (A10K1)	BRU-32 - Fire 1	Set - message 9
			K2 (A10K2)	BRU-32 - Fire 2	Set - message 9

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			K3 (A10K3)	Monitors weapon functions listed: AGM-65 - Launch AIM-7 - Motor Fire (Pylon) AIM-9 - Launch Command BRU-33 - Fire 1 Rocket Select 3 AGM-45- Fire Ready AGM-84 - Abort Command 2 AGM-84E - Abort Command 4 AIM-120 Umbilibal Retract Active (Pylon Only)	Set - message 9
			K4 (A10K4)	Monitors weapon functions listed: AGM-84 - Intent to Launch 2 AGM-84E - Intent to Launch AGM-65 - Dome Cover Power AIM-7 - Battery and Hydraulic Activate (pylon) AIM-9 - Master Arm BRU-33 - Fire 2 AGM-88 - Missile Fire MER - Step and Fire 4 AIM-120 - Master Arm relay BIT	Set - message 9
			K5 (A10K5)	BRU-32 - Auxiliary Fire	Set - message 9
			K6 (A10K6)	BRU-32 - Lock Override	Set - message 9
			K9	AIM-7 - Eject 1 (fuselage) 4 AIM-120 - Eject 1 (fuselage)	Set - message 9
			K10	AIM-7 - Battery and Hydraulic Activate (fuselage)	Set - message 9

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			K11	AIM-7 - Eject 2 (fuselage) 4 AIM-120 - Eject 2 (fuselage)	Set - message 9
			K12	AIM-7 - Motor Fire (fuselage)	Set - message 9
			A12K2 4	AIM-120 - Release Consent AGM-65 - FOV Select Driver	Set - message 8
			Driver 4	Monitors weapon functions listed: BRU-33 - Left/Right Select AGM-65 - Uncage AIM-9 - Right Missile Select Pylon) 4 AIM-120 - Right Missile Select (pylon)	Set - message 8
			No. 3 Relay	AGM-65 - FOV Relay 4 AIM-120 - Release Consent	Set - message 8
			Driver 3	Monitors weapon functions listed: 3 AGM-45 - Angle Gate Enable AGM-65 - Station Select AIM-9 - Manual Uncage AIM-7 - Solenoid Unlock Driver	Set - message 8
To	21	BIT Data	Signal Value	8 BIT data input AIM-7 Simulated Doppler/ Dogfight Signal	Output - message 6 Selected - message 12
			Dogfight/ Sweep Control Relay	AIM-7	Set - message 12
			Over Temperature		

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
To	22	BIT Driver	Altitude Switch 1	AIM-7	Set - message 8
			Driver 2	Monitors weapon functions listed: AGM-84 - Destruct Disable 2 AGM-84E - Destruct Disable AGM-65 - Slew Enable BRU-33 - Tail Arm BRU-32 - Tail Arm 3 AGM-45 - ESAB Driver	Set - message 8
			Altitude Switch 2	AIM-7	Set - message 8
			Lock Driver	LAU-116, BRU-32, BRU-33, LAU-115	Set - message 8
			Unlock Driver	LAU-116, BRU-32, BRU-33, LAU-115	Set - message 8
			Code Data	Monitors weapon functions listed: AGM-65 - Cursor Control Field (data) 4 AGM-65F - Tracking Contrast AIM-7 - Sweep Select	Set - message 8
			Latch Driver 1	Monitors weapon functions listed: AGM-65 - Select AIM-9 - Coolant Control BRU-33 - Nose Arm BRU-32 - Nose Arm	Set - message 8
			Slave Enable/ Crab	Monitors weapon functions listed: AGM-65 - Slave Enable	Set - message 8

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Redundant Driver 1	Monitors Redundant Driver 1 BIT for signals listed: 3 AGM-45 - Fire Ready AGM-65 - Launch AIM-7 - Motor fire (pylon) AIM-9 - Launch Command (pylon) BRU-33 - Fire 1 BRU-32 - Fire 1 AIM-7 - Eject 1 and Eject 2 (fuselage) AGM-88 - Abort Command AGM-84 - Abort Command 2 AGM - 84E - Abort Command 4 LAU-127 - Umbilical Retract	Set - message 8
			Redundant Driver 2	Monitors Redundant Driver 2 BIT for signals listed: AGM-84 - Intent to Launch 2 AGM-84E - Intent to Launch AGM-65 - Dome Cover Power AIM-7 - Battery and Hydraulic Activate (pylon) AIM-9 - Master Arm (pylon), Launch Driver (wing tip)	Set - message 8

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
				BRU-33 - Fire 2 BRU-32 - Fire 2 AGM-88 - Missile Fire AIM-7 - Motor Fire and Battery and Hydraulic Activate (fuselage) MER - Step and Fire 3 AGM-45 - Motor Fire AIM-7 - Inflight Switch (AIM-7F) Altitude Switch 3 (AIM-7M) LAU-127 - Unlock 4 Commands	
			PD Command	AIM-7 - (Pulse Doppler)	Set - message 8
To	23	Discrete Receiver No. 1	Unlock Monitor	BRU-32	From weapon stations
			Lock Monitor	BRU-32	
			Store Aboard	BRU-32	
			Fuel Tank Ident (External)		
			Store Aboard Left	BRU-33	
			Store Aboard Right	BRU-33	
			MER Ident		
			AIM-9 Ident (Station 1 and 9)		
			AIM-9 Ident Left (Station 2 and 8)		
			AIM-7 Solenoid Unlock Monitor (Station 2 and 8)	LAU-115	
			4 AIM-120 - Ident Left		
			4 AIM-120 - Ident Right		

Table 1. Armament Mux Bus Signal Description To/From Armament Computer (Continued)

To/ From	Msg No.	Message Title	Word Bit Description	Signal Description	Remarks
			Unlock Monitor Left	BRU-33	
			Lock Monitor Left	BRU-33	
			Unlock Monitor Right	BRU-33	
			Lock Monitor Right	BRU-33	
			BRU-33 Ident		
			[3] Shrike/ Umbilical ID Parity		
			[4] LAU-127 - Unlock Monitor	AIM-9 LAU-127 Unlock Monitor Left and Right	
			[4] LAU-127 Lock Monitor	AIM-9 LAU-127 Lock Monitor Left and Right	
			AGM-65	Seeker locked	
To	[1]	Gun Output Data	BIT	Data out	Set - message 18, word 1
			Rounds fired	9 BIT data input	From Gun
			Fail Safe Motor Relay	K1	Set - message 18, word 1
			Fire Voltage Relay	K2	Set - message 18, word 1
			Fail Safe Fire Relay	K3	Set - message 17
			Over Temperature		Read BIT - message 17
			Clear		From Gun
			Last round		From Gun

NOTES

[1] Message number can be any message number.

[2] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

[3] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[4] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Operation Simplified Schematics WP018 00

Alphabetical Index

Subject	Page No.
Introduction	1
Mux Bus Interface	2
Armament Mux Bus Communications	3
Avionic Mux Channel Communications	2
System Power On	1
Armament Computer Power	1
Command Launch Computer Power	2
Command Signal Encoder-Decoder Power	2

Record of Applicable Technical Directives

None

1. INTRODUCTION.

2. The stores management system (SMS) operation is provided in this work package (WP). Additional operation WPs are listed in WP001 00.

3. Refer to WP018 00 for simplified schematics, system power on, and mux bus interface operation.

4. Refer to WP014 00 for component location.

5. SYSTEM POWER ON.

6. The SMS power on simplified schematic in WP018 00 shows power to the Armament Computer CP- 1342/AYQ-9(V) and Command Launch Computer CP-1001( )/AWG. Also shown is the Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V) and Left Wing Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V). The two command signal encoder-decoders represent typical examples of encoder-decoder power on application.

7. Power for the armament computer, command launch computer, and weapon stations 5 thru 9 is from the right bus. Power for weapon stations 1 thru 4 and gun system is from the left bus. Bus power operation is in A1-F18AC-420-100.

8. **ARMAMENT COMPUTER POWER.** During ground operation, when external electrical power is on the aircraft, power to the armament computer is interlocked by a ground power switching circuit. Ground power switching relays no. 9 and 10 are

energized with ground power ON. The two relays interrupt armament computer power. The relays are deenergized with GND PWR 3 switch set to B ON or when bus power is being supplied by the generators during engine operation.

9. On F/A-18B, 28vdc circuit breaker power is sent to the A/A and A/G mode select relays. These relays are used to control the aircraft master mode select function.

10. **AC Power.** The 115vac, 400Hz, 3Ø power is used in the armament computer for power supply regulators. The power ON function of the armament computer starts the SMS power on (initial) BIT.

11. **DC Power.** Essential 24/28vdc is used for emergency jettison circuits. Right bus 28vdc is used for internal relay coil circuits and 28vdc discrete driver functions.

12. The right 28vdc is filtered by diode CR1 and used as an armament computer output for 28vdc filtered left and right. The 28vdc filtered left and right is used in aircraft relay panels for coil voltages for weapon station power control relays. Right 28vdc filtered is also used by the CLC on relay.

13. **COMMAND LAUNCH COMPUTER POWER.** The command launch computer uses 115vac, 400Hz, 3Ø and 28vdc. Power is on the command launch computer any time aircraft power is on but the regulators are disabled. The armament computer controls the command launch computer power on function with a ground discrete to the CLC on relay. This relay is energized during SMS power on BIT, initiated BIT, and when a high speed anti-radiation missile (HARM) is selected. When the armament computer output energizes the relay, a ground is sent to the command launch computer to enable the regulators.

14. The 28vdc is used internal of the command launch computer for relay and discrete 28vdc driver functions.

15. **COMMAND SIGNAL ENCODER-DECODER POWER.** Each encoder-decoder uses 28vdc and 115vac, 400Hz, ØA. Encoder-decoders that control pylon weapon stations also use essential 24/28vdc for the emergency jettison circuits and nose/tail fuzing.

16. Power is applied to the encoder-decoders when aircraft power is on. The gun encoder-decoder requires GND PWR 3 switch set to B ON for 115vac power. The encoder-decoder regulators are off until the armament computer applies a discrete ground to turn the component on. The encoder-decoders are turned on during BIT and when the encoder-decoder controls the priority station for the selected weapon.

17. MUX BUS INTERFACE.

18. The SMS uses the armament mux bus and the avionic mux bus to control the to/from communications for weapon control. The armament computer has the terminal control function for the armament mux bus. The mission computer (MC) system controls the avionic mux bus terminals.

19. Both mux bus circuits have two shielded twisted wire pairs which can operate independent of each other. Only one pair of wires is required to enable mux bus communications. If one wire pair has failed, communication is established on the second pair of wires.

20. The multiplex data processing of signals enables the time sharing of signals. This process allows multiple signals to be transmitted/received over the two wire circuit.

21. The components with the mux bus control terminals do the timing function for the multiplexing of the signals. Each component on the mux bus has a remote terminal with a terminal address. The terminal address enables the control terminal component to select which terminal is to be established for communication. The control terminal can address only one remote terminal at a time.

22. Data transfer is enabled by the control terminal addressing the remote terminal and sending a request to transmit/receive data. The remote terminal responds to the request and the control terminal sends/receives the data requested.

23. The control terminal is the only terminal on a mux that can address another terminal. Remote terminal communications is always done with the control terminal.

24. **AVIONIC MUX CHANNEL COMMUNICATIONS.** The armament computer and command launch computer have remote terminals on the avionic mux bus. Weapon signals and commands are sent to/from the SMS as requested by the MC system. The MC system uses data from the SMS and avionic systems remote terminals to control the displays and weapon signal functions.

25. The avionic mux bus is also controlled by the MC system. The MC system uses radar system, inertial navigation, and backup attitude and navigation system inputs to compute weapon data. This data is sent to the SMS on the avionic mux bus. The MC system can also display weapon data on the right Digital Display Indicator IP-1317( ) using the avionic mux bus.

26. The armament computer memory can be programmed/read over the avionic mux bus. The memory is also accessible on the aircraft through the use of the Computer Memory Loader/Verifier (MLV) AN/ASM-607(V)5, which connects to the multiplex test connector in the nose wheelwell. The MC system is off for MLV operation.

27. MLV operation is provided with special tests in WP037 00.

28. **ARMAMENT MUX BUS COMMUNICATIONS.** Each of the nine weapon station encoder-decoders has a remote terminal on the armament mux bus. When requested by the control terminal in the armament computer, the remote terminal sends weapon station status data or receives weapon control signals. WP016 00 lists the signals to/from the armament computer and encoder-decoders.

29. The encoder-decoder receives and converts the mux digital data to analog signals. These analog signals are sent to the weapon/store on the weapon station. Signals from the weapon/store are processed from analog to digital data and sent to the armament computer on the armament mux bus.

30. The Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V) and Left and Right Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) have bus termination resistors for the armament mux bus. The termination resistors are required for maximum transmission efficiency.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - OPERATION SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
Armament Mux Bus Interface Simplified Schematic, Figure 2	8
Avionic Mux Channel Interface Simplified Schematic, Figure 3	12
Introduction	1
Stores Management System Power On Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

None

1. INTRODUCTION

2. The schematics in this work package are provided to support the data in WP017 00.

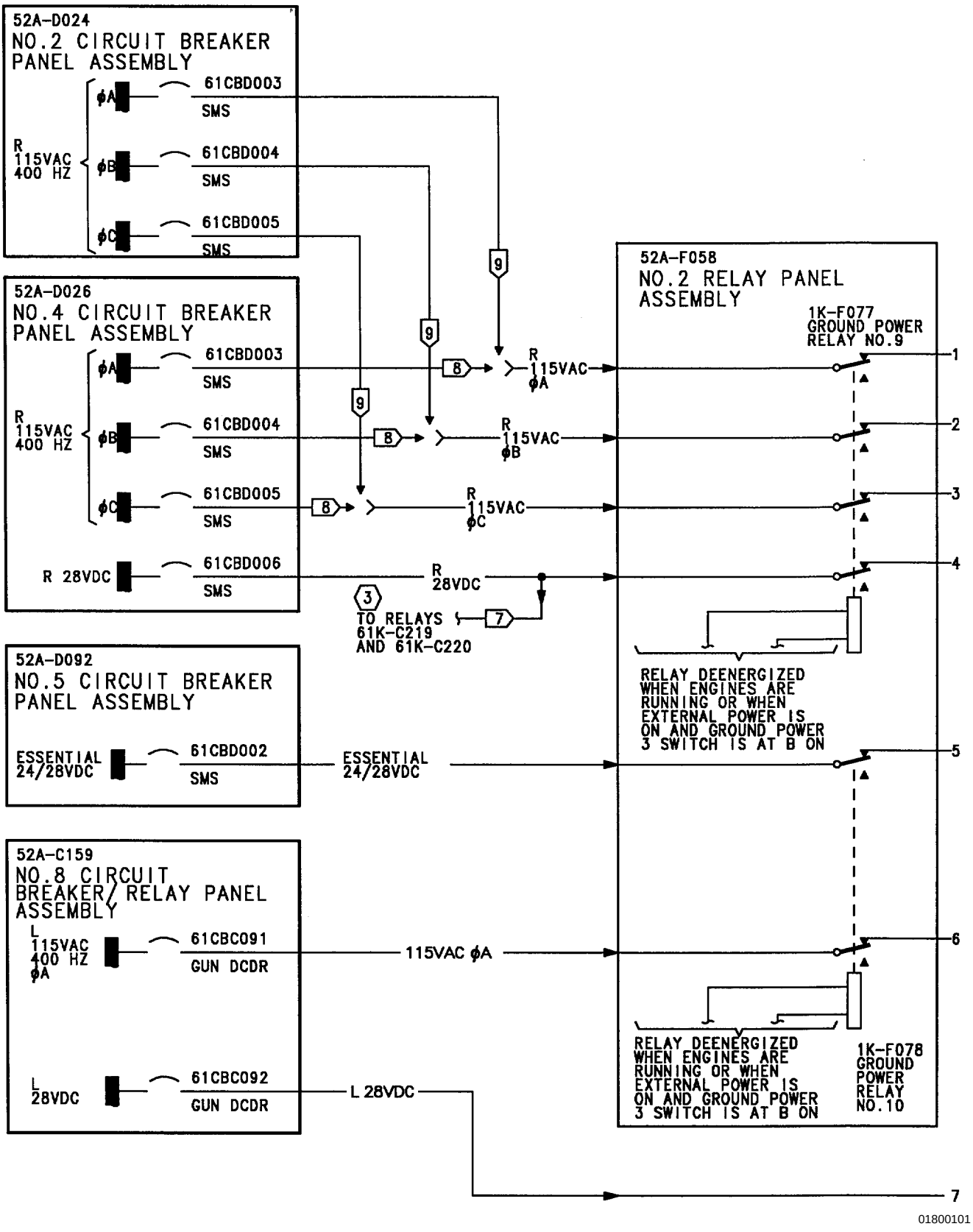
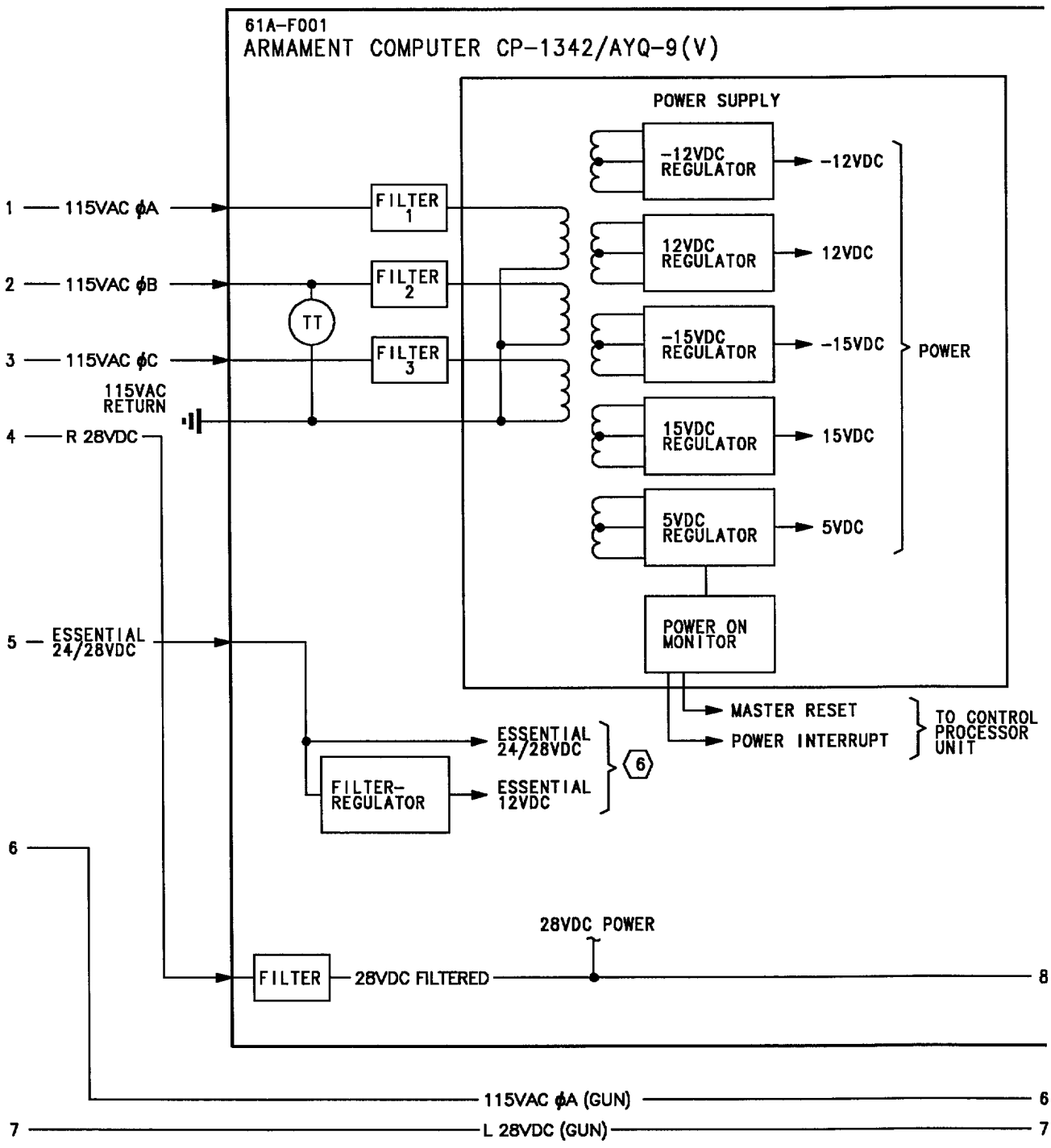
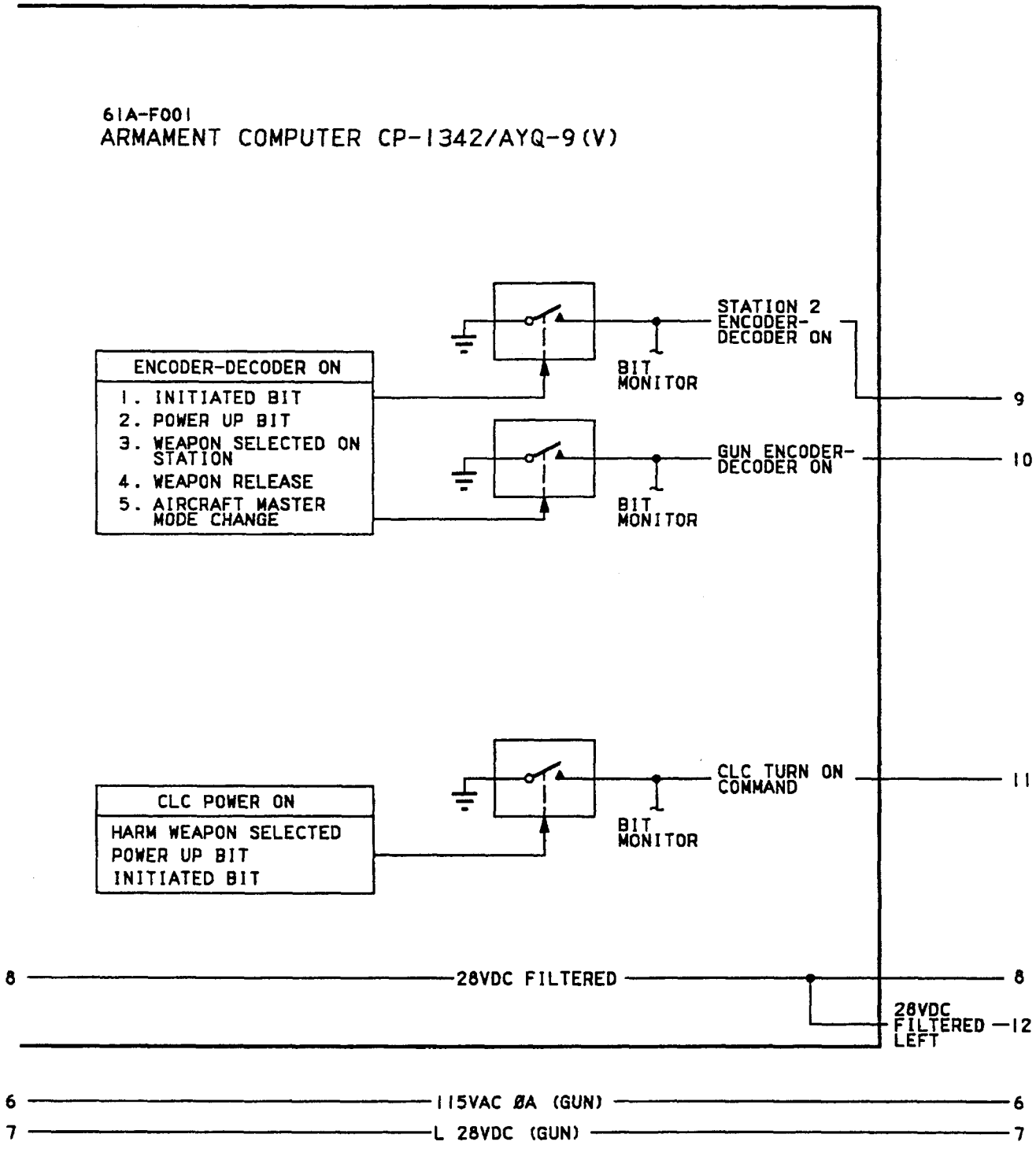


Figure 1. Stores Management System Power On Simplified Schematic (Sheet 1)



01800102

Figure 1. Stores Management System Power On Simplified Schematic (Sheet 2)



01800103

Figure 1. Stores Management System Power On Simplified Schematic (Sheet 3)

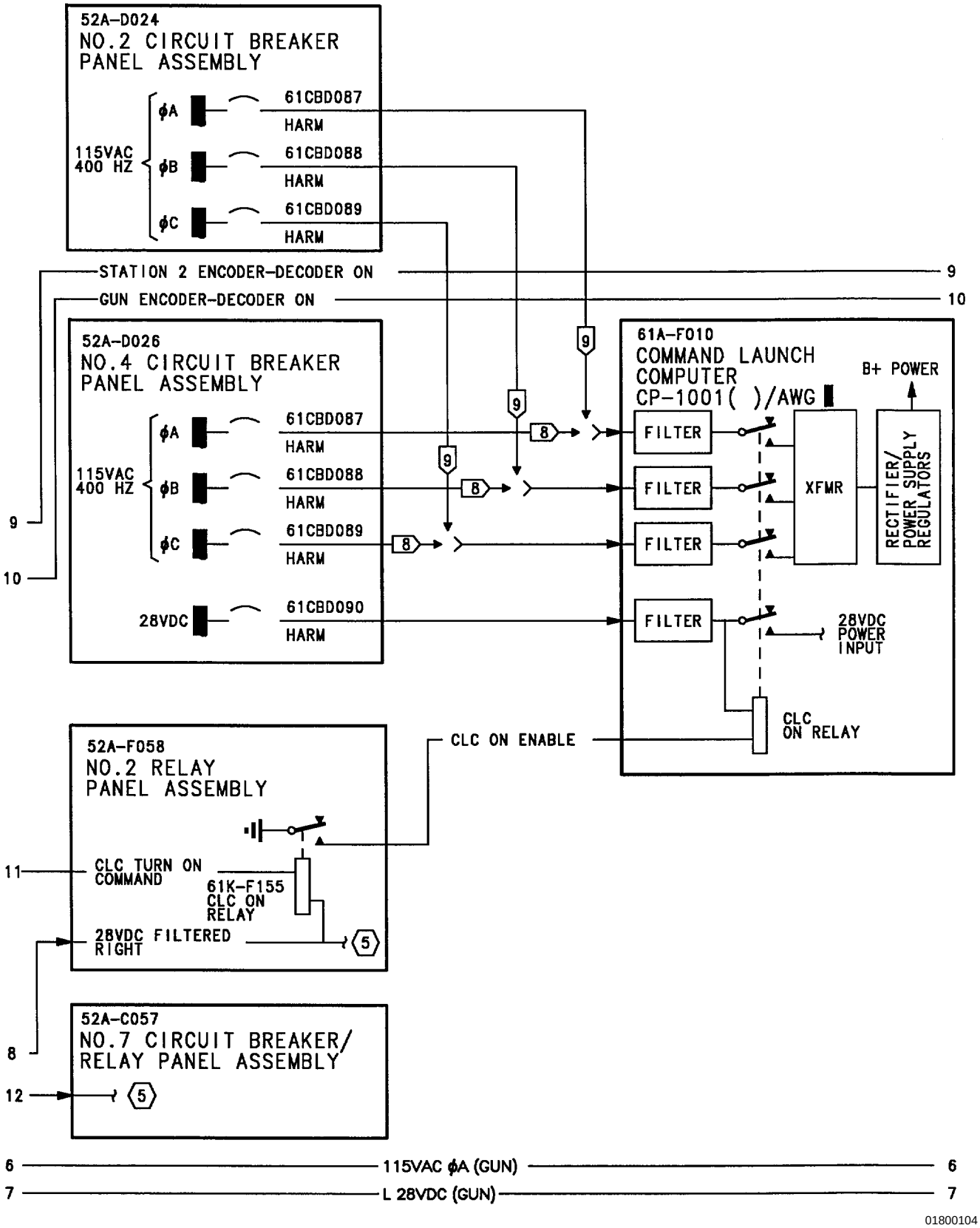
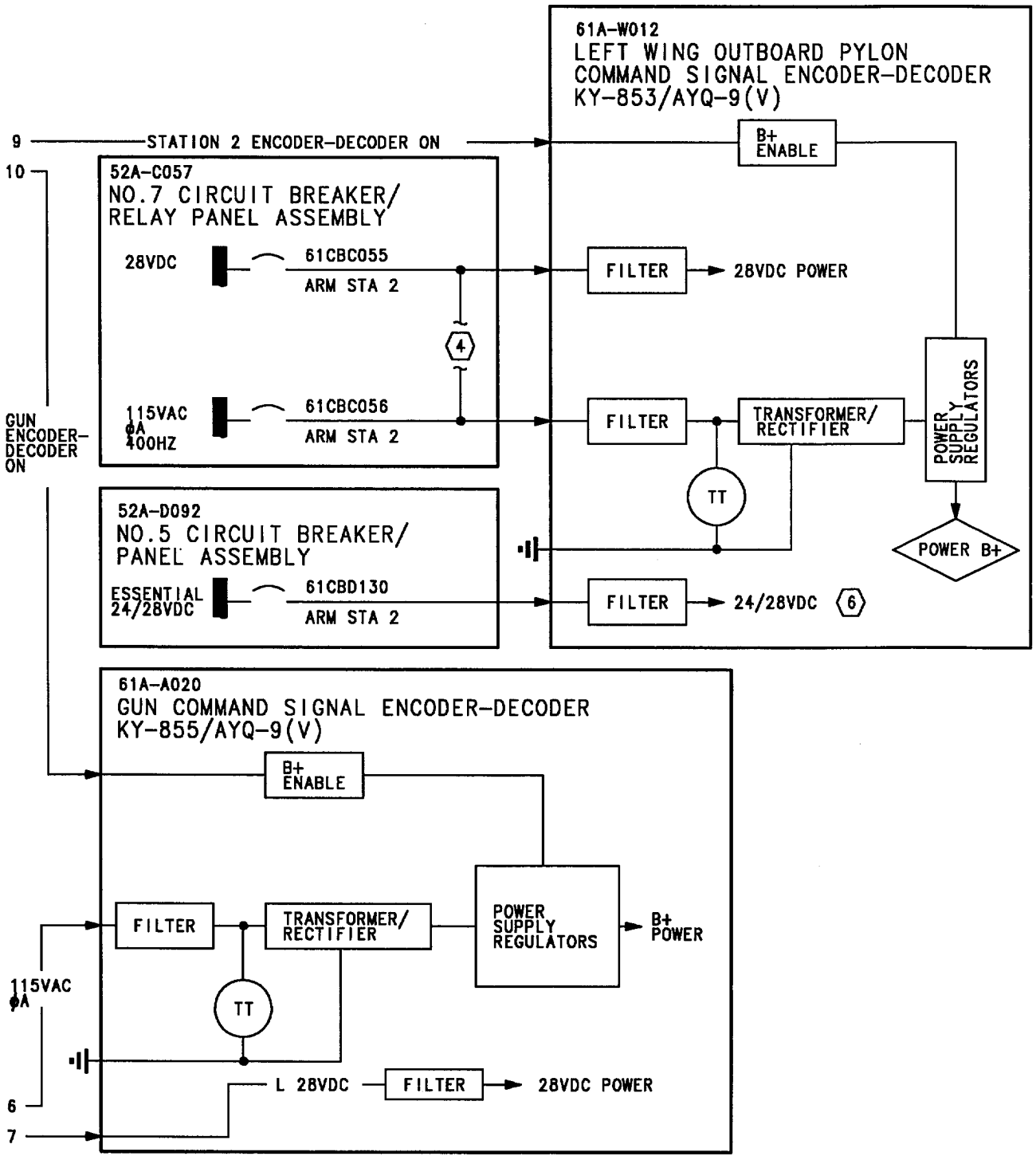


Figure 1. Stores Management System Power On Simplified Schematic (Sheet 4)



01800105

Figure 1. Stores Management System Power On Simplified Schematic (Sheet 5)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2. NONSTANDARD SYMBOLS: SEE WP002 01.

(3) AIRCRAFT MASTER MODE SELECT SIMPLIFIED SCHEMATIC, WP010 00.

(4) WEAPON STATION 2 POWER CONTROL SIMPLIFIED SCHEMATIC, WP045 00.

(5) RELAY COIL POWER FOR CLC ON AND WEAPON STATION POWER CONTROL RELAYS.

(6) EMERGENCY JETTISON SIMPLIFIED SCHEMATIC, WP028 00.

7 F/A-18B.

8 161353 THRU 161359.

9 161360 AND UP.

Figure 1. Stores Management System Power On Simplified Schematic (Sheet 6)

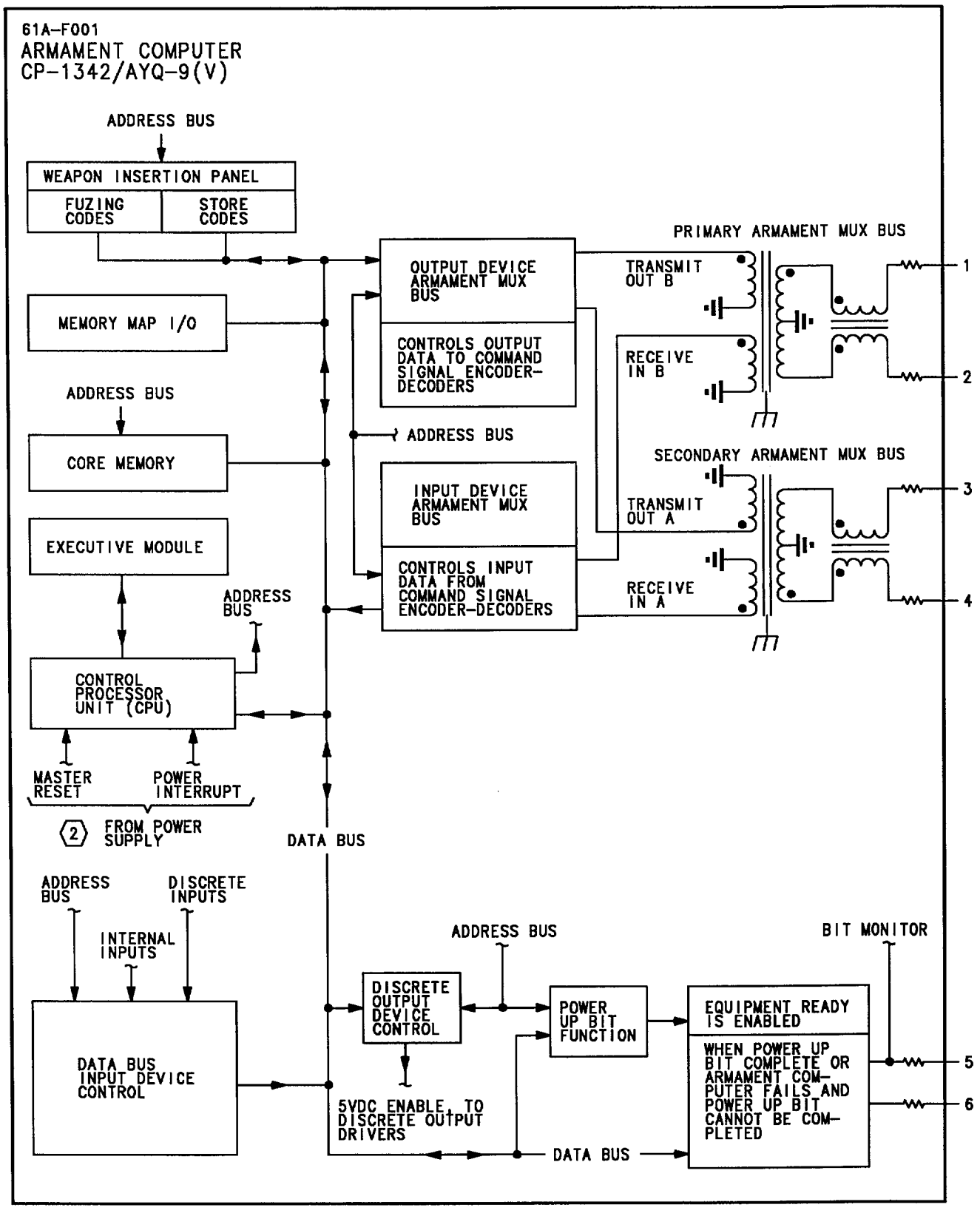
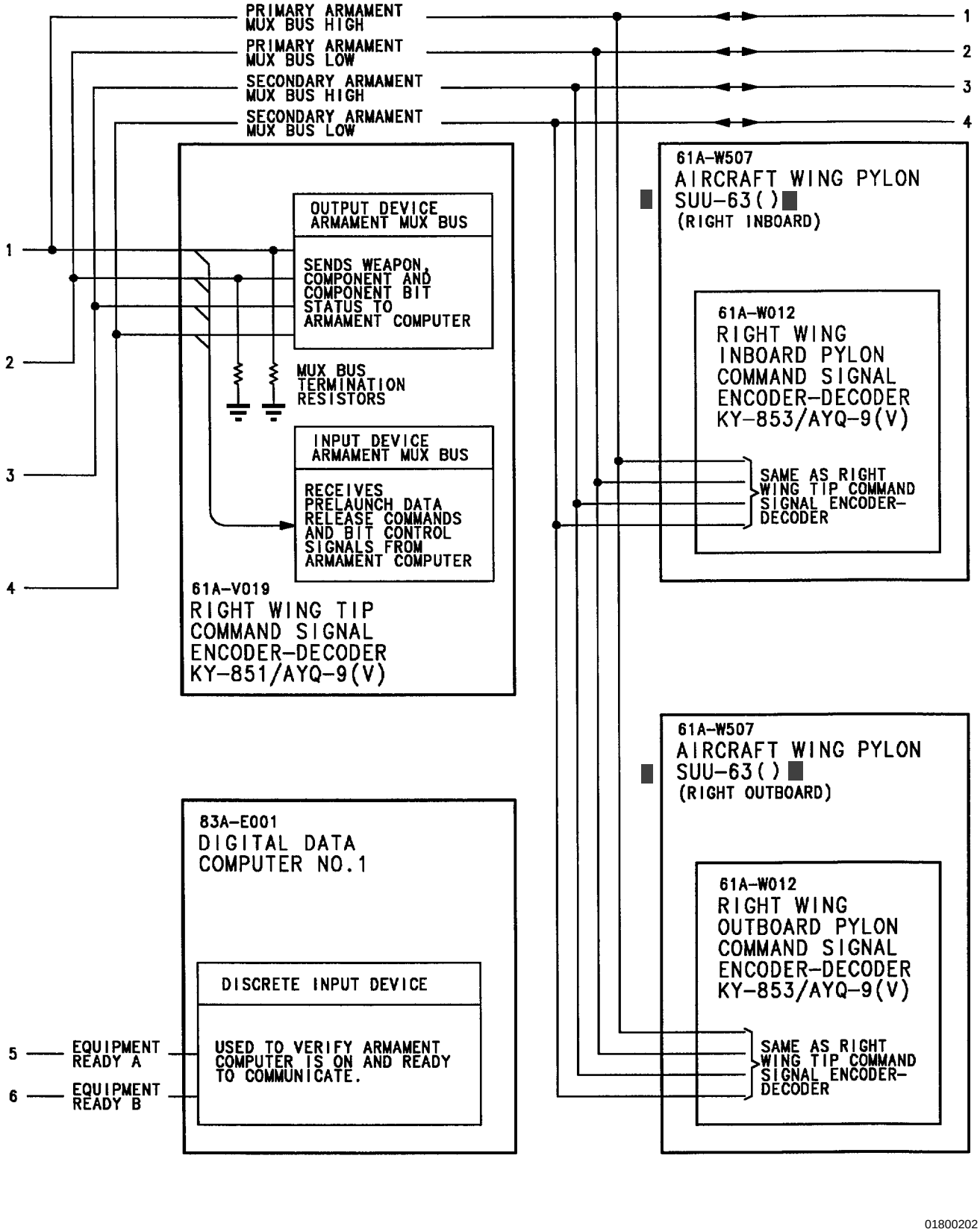


Figure 2. Armament Mux Bus Interface Simplified Schematic (Sheet 1)



01800202

Figure 2. Armament Mux Bus Interface Simplified Schematic (Sheet 2)

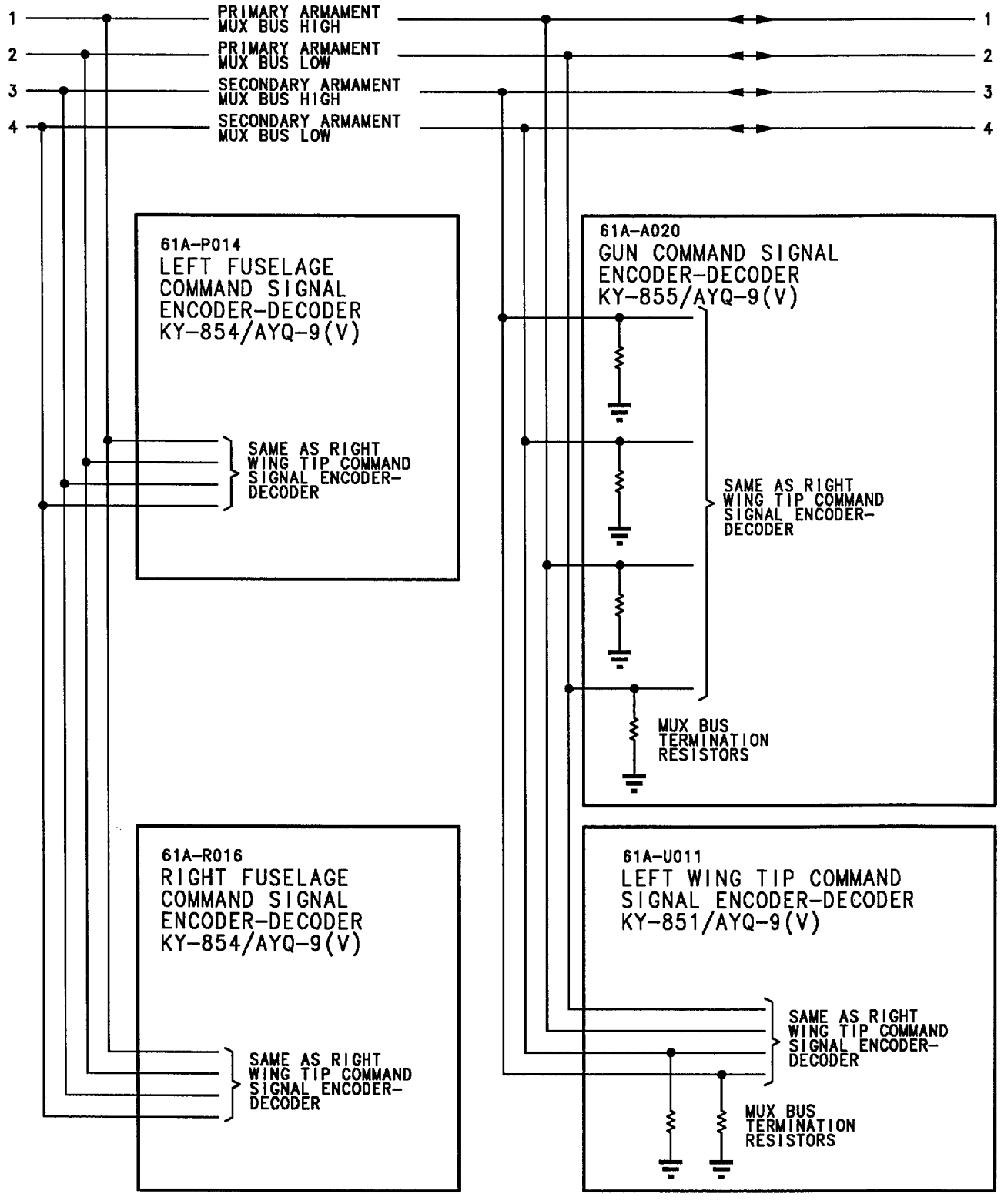


Figure 2. Armament Mux Bus Interface Simplified Schematic (Sheet 3)

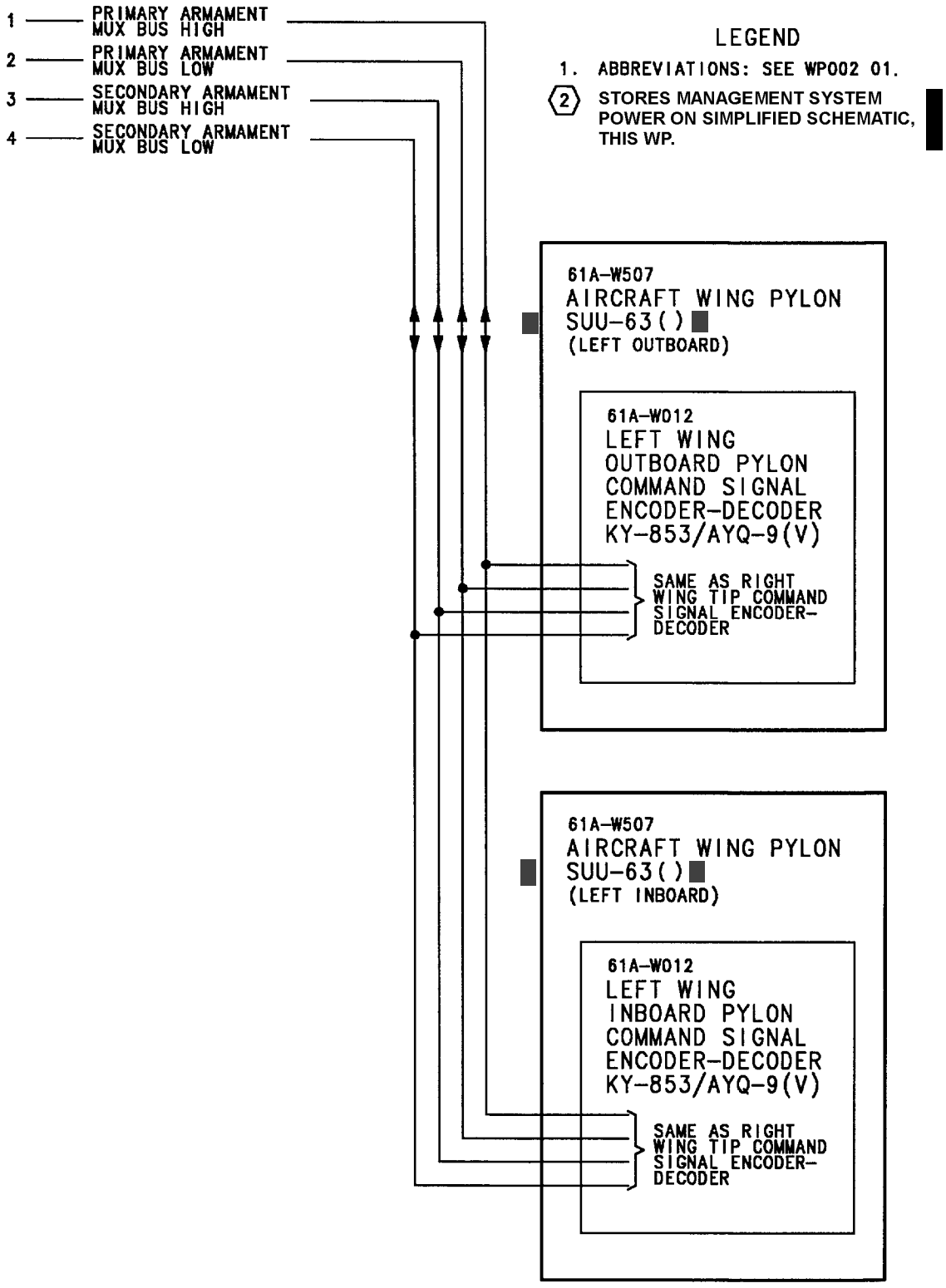


Figure 2. Armament Mux Bus Interface Simplified Schematic (Sheet 4)

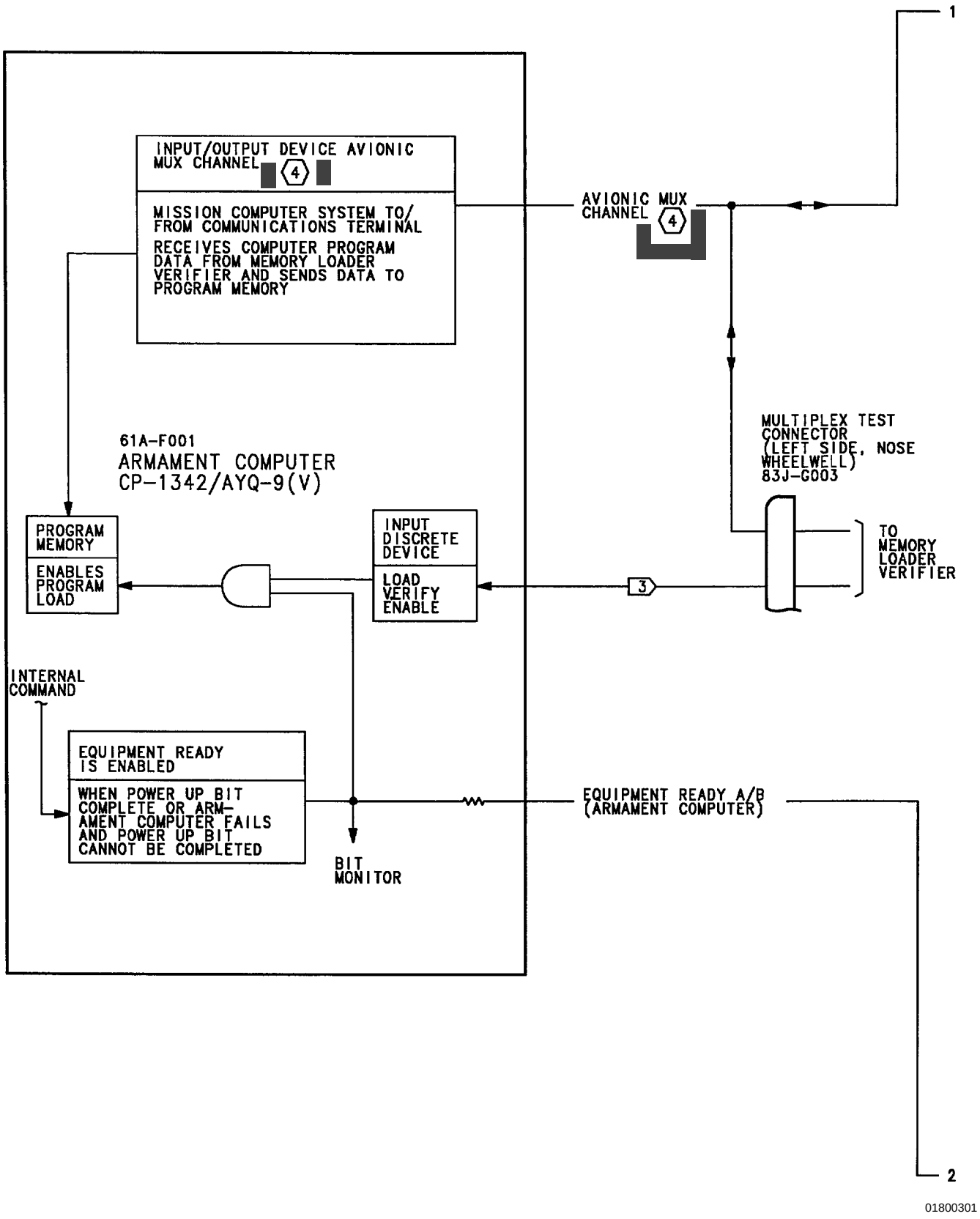


Figure 3. Avionic Mux Channel Interface Simplified Schematic (Sheet 1)

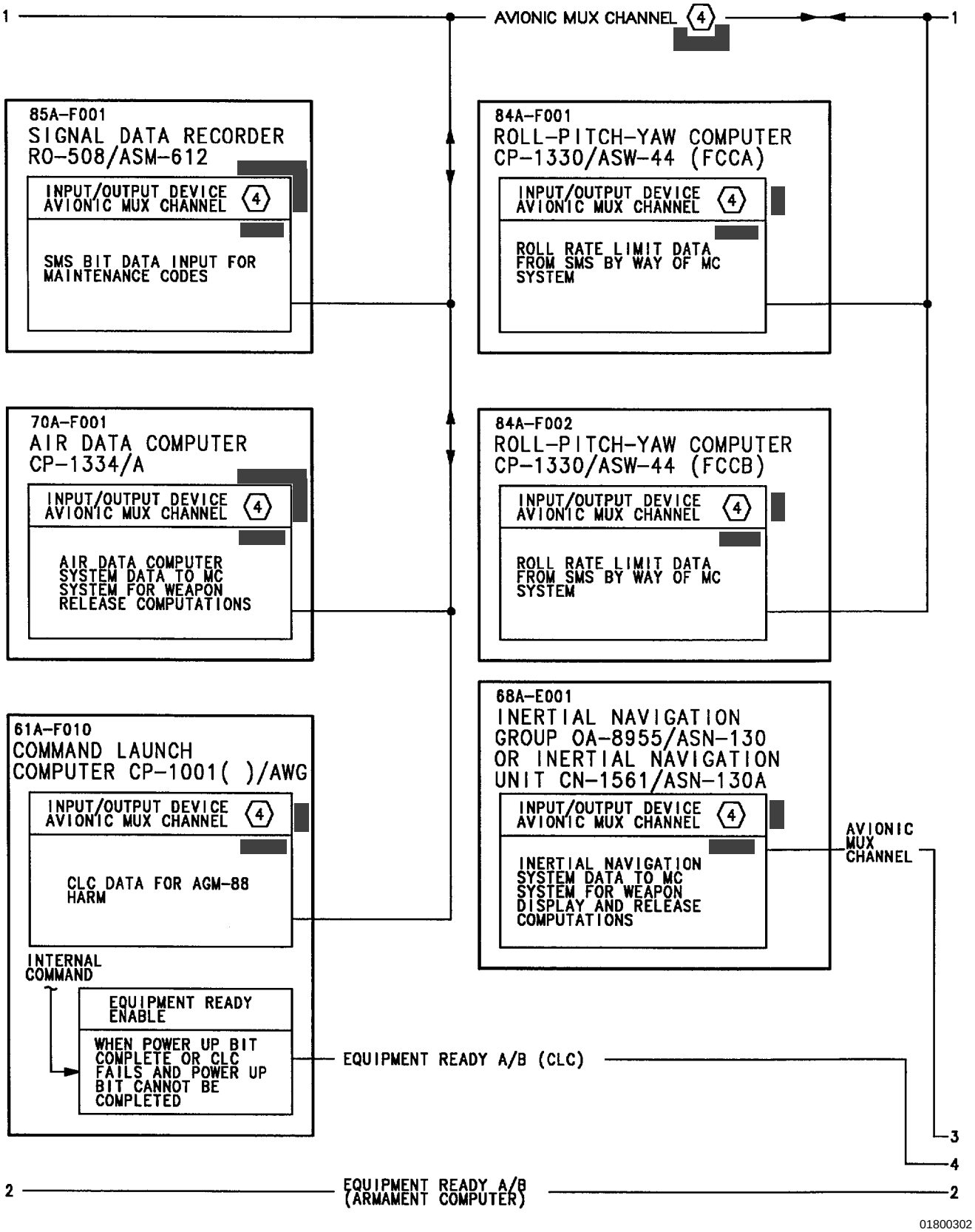
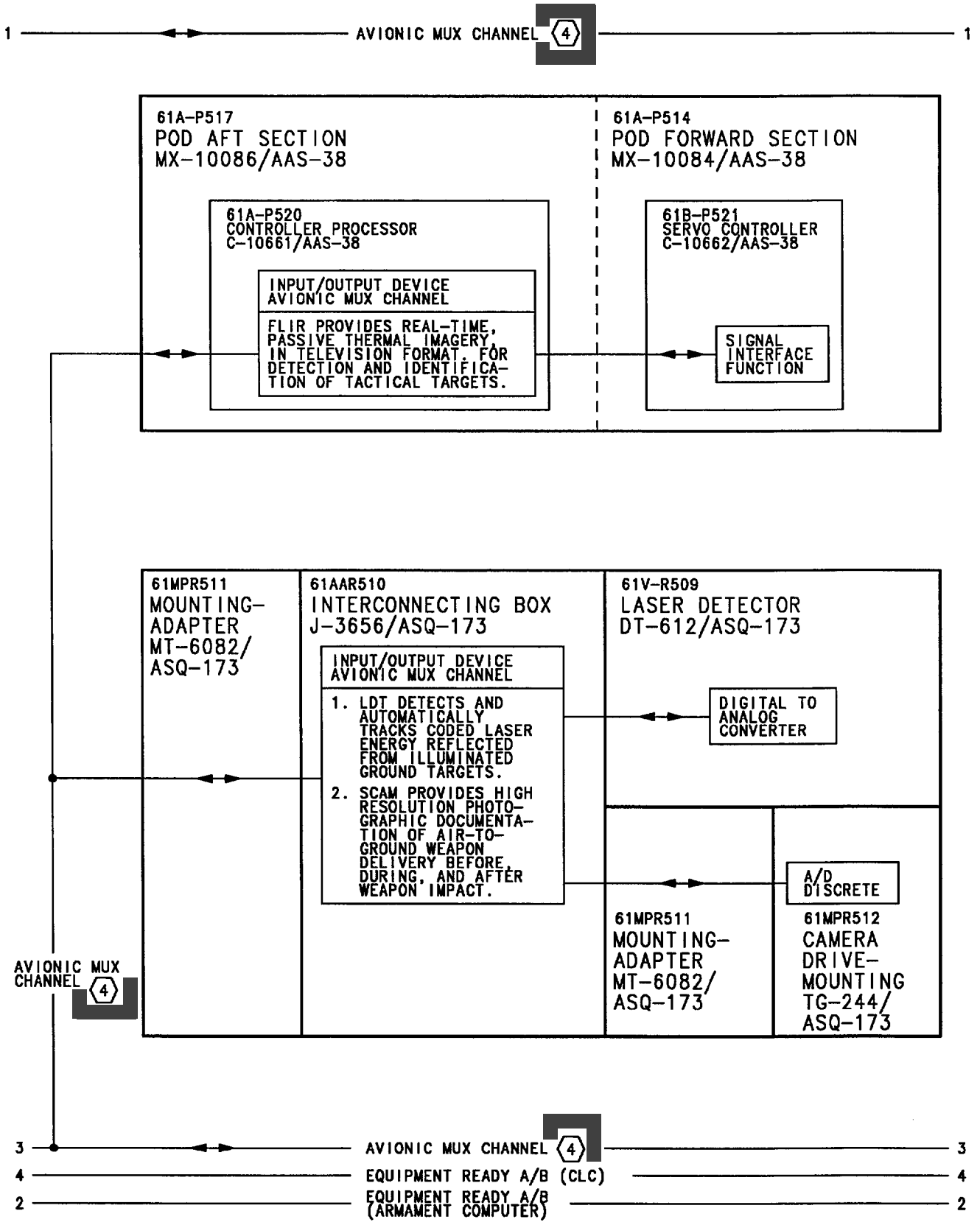
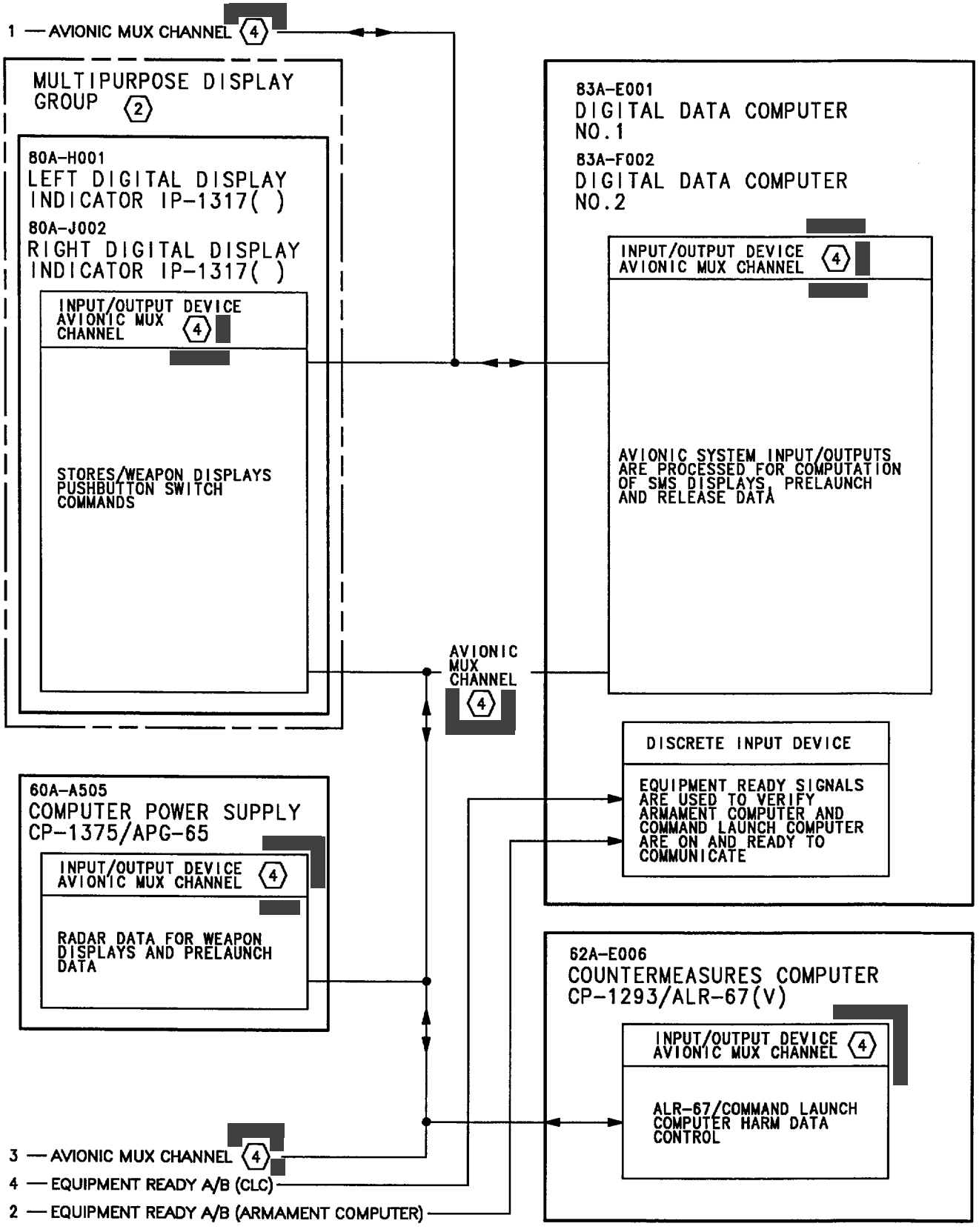


Figure 3. Avionic Mux Channel Interface Simplified Schematic (Sheet 2)



01800303

Figure 3. Avionic Mux Channel Interface Simplified Schematic (Sheet 3)



01800304

Figure 3. Avionic Mux Channel Interface Simplified Schematic (Sheet 4)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

(2) THE MULTIPURPOSE DISPLAY GROUP IS MADE UP OF THE LEFT DIGITAL DISPLAY INDICATOR IP-1317( ), RIGHT DIGITAL DISPLAY INDICATOR IP-1317( ), HEAD-UP DISPLAY UNIT AN/AVQ-28, HORIZONTAL INDICATOR IP-1350/A, AND ON F/A-18B THE REAR LEFT DIGITAL DISPLAY INDICATOR IP-1318( ), REAR RIGHT DIGITAL DISPLAY INDICATOR IP-1318( ), AND REAR CENTER DIGITAL DISPLAY INDICATOR IP-1318( ), FOR MULTI-PURPOSE DISPLAY GROUP, REFER TO A1-F18AC-745-500.

3 161702 AND UP.

(4) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 3. Avionic Mux Channel Interface Simplified Schematic (Sheet 5)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - AIRCRAFT MASTER MODE SELECT

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Reference Tables WP015 00
Stores Management System Aircraft Master Mode Select Simplified Schematics WP020 00
Weapon Control Systems A1-F18AC-740-110
AIM-120 AMRAAM Operation WP071 00
Weapon Control Systems A1-F18AC-740-500
Aircraft Master Mode Select Schematic WP014 00

Alphabetical Index

Subject	Page No.
A/G and A/A Light Switch Assemblies	2
Aircraft Master Mode Select Displays, Figure 1	13
Aircraft Master Mode Select Operation	2
Armament Computer Functions	5
Displays	7
F/A-18A Aircraft Switching Functions	3
F/A-18B Aircraft Switching Functions	3
HI Display Symbology, Table 3	12
HUD Symbology, Table 1	8
Introduction	2
Mission Computer System Functions	5
Power On Logic	2
Simulation Mode	5
Stores Display Symbology, Table 2	11

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The stores management system (SMS) aircraft master mode select operation is provided in this work package (WP). Additional SMS operational WPs are listed in WP001 00.

3. Refer to WP020 00 for aircraft master mode select simplified schematics. For detailed aircraft master mode select functions, refer to A1-F18AC-740-500, WP014 00.

4. Refer to WP014 00 for component location.

5. AIRCRAFT MASTER MODE SELECT OPERATION.

6. The armament computer software logic uses discrete input switch functions and internal power up commands to determine aircraft master mode select. Mode select is used internally by the armament computer for weapon computations and is sent to the mission computer system on the avionic mux bus. Aircraft master modes are listed below:

a. air-to-air (A/A)

b. air-to-ground (A/G)

c. navigation (NAV)

7. The armament computer receives A/A and A/G discrete select signals and outputs light or mode select discretes to the aircraft switching circuits. The armament computer operates the same on F/A-18A and F/A-18B, however, the switching circuits are different.

8. Operation of aircraft master mode select in this WP is listed below:

a. power on logic

b. A/G and A/A light switch assemblies

c. F/A-18A aircraft switching functions

d. F/A-18B aircraft switching functions

e. simulation mode

f. armament computer functions

g. mission computer system functions

h. displays

9. **POWER ON LOGIC.** When the SMS is turned on, the armament computer tests for the LMG WOW relay no. 2 input discrete. If an open exists (weight on wheels), NAV master mode is set. If a ground exists (weight off wheels), the armament computer selects the master mode that was selected before power was removed from the SMS.

10. **A/G AND A/A LIGHT SWITCH ASSEMBLIES.** A/G and A/A master modes can be selected using the A/G and A/A light switch assembly (light switch assembly). The light switch assembly is on the master arm control panel assembly. On F/A-18B, the rear cockpit light switch assembly is on the master mode select panel assembly.

11. When A/A mode is selected and all gear up and locked is true, the unlock command is sent to the weapon stations with A/A weapons aboard. When A/G mode is selected and all gear up and locked is true, the unlock command is sent to weapon stations with A/G weapons aboard. The unlock signal for A/A weapons and A/G weapons is the same signal. Therefore, when the A/A unlock signal is sent to station 6, station 5 will also unlock since stations 5 and 6 share an encoder-decoder. Likewise when the A/G unlock signal is sent to station 5, station 6 will unlock. Also, if the A/A unlock signal is sent to a wing pylon station for A/A missile launchers, the BRU-32 will unlock.

12. **Light Switch Assembly.** The light switch assembly is made up of two separate switches; A/A and A/G. Each switch has a light switch function.

13. Light Function. The lights are powered by 8-14/28vdc from the cockpit warning/caution/advisory lighting system.

14. The voltage is variable between 8 and 14vdc as selected by the WARN/CAUTION dimmer control on the INTR LT control box panel assembly. When the WARN/CAUTION dimmer control is selected to bright (BRT), 28vdc is provided for day time operation. The light ground is controlled by an armament computer discrete ground output on F/A-18A and a mode select relay ground on F/A-18B. The lights operate as a function of mode select/deselect. A light test discrete ground can turn the lights on.

15. Switch Function. The switch is a momentary switch that sends a discrete ground to the armament computer as a function of select/deselect. Pressing the switch will select the mode. Pressing the switch again will deselect the mode. On F/A-18B, the switch select function for the two light switch assemblies is wired in parallel.

16. **F/A-18A AIRCRAFT SWITCHING FUNCTIONS.** This operation is limited to the discrete inputs/outputs and logic for the armament computer and light switch assembly on the F/A-18A.

17. **A/A Select Logic.** A/A master mode can be selected by discrete ground inputs to the armament computer from one of the switching functions listed:

a. Pressing A/A switch on the light switch assembly.

b. Selecting AIM-120 (AFTER AFC 253 OR 292), AIM-7, AIM-9, or gun on the A/A weapon select switch on the aircraft controller grip assembly.

18. The A/A select discrete and the A/A weapon select switch discretes to the armament computer do the logic switching functions listed:

a. Sets A/A master mode.

b. Sets A/A select light enable to turn on the A/A light.

c. If previously selected, removes the A/G select light enable to turn off the A/G light.

d. Sends the unlock command to the weapon stations with A/A weapons aboard, if all gear up and locked is true.

e. Does periodic BIT on A/A weapon stations.

f. When the A/A select discrete is available, the priority AIM-9 is automatically selected.

19. **A/A Deselect Logic.** A/A master mode can be deselected by discrete ground inputs to the armament computer from the A/A or A/G light switch assembly.

20. Pressing A/A does the mode change logic listed:

a. Sets NAV master mode.

b. Removes the A/A select light enable to turn off the A/A light.

21. Pressing A/G does the mode change logic listed:

a. Sets A/G master mode.

b. Sets A/G select light enable to turn on the A/G light.

c. Removes A/A select light enable to turn off the A/A light.

22. **A/G Select Logic.** A/G master mode is selected by pressing the A/G switch on the light switch assembly. The discrete A/G select to the armament computer does the mode change logic listed:

a. Sets A/G master mode.

b. Sets A/G select light enable to turn on the A/G light.

c. If previously selected, removes the A/A select light enable to turn off the A/A light.

d. Sends the unlock command to the weapon stations with A/G weapons aboard, if all gear up and locked is true.

e. Does periodic BIT on A/G weapon stations with A/G weapons loaded.

23. **A/G Deselect Logic.** A/G master mode can be deselected by a discrete ground input to the armament computer from one of the switching functions listed:

a. Pressing A/A switch.

b. Pressing A/G switch.

c. Selecting AIM-120 (AFTER AFC 253 OR 292), AIM-7, AIM-9, or gun on A/A weapon select switch.

24. Pressing the A/A switch or selecting AIM-120 (AFTER AFC 253 OR 292), AIM-7, AIM-9, or gun does the switch logic listed:

a. Sets A/A master mode.

b. Sets A/A select light enable to turn on the A/A light.

c. Removes A/G select light enable to turn off the A/G light.

25. Pressing A/G switch does the switch logic listed:

a. Sets NAV master mode.

b. Removes A/G select light enable to turn off the A/G light.

26. **F/A-18B AIRCRAFT SWITCHING FUNCTIONS.** This operation is limited to the discrete inputs/outputs and logic for the armament computer to control the mode select relays and light switch assemblies on F/A-18B.

27. **Mode Select Relays.** A/A mode select relay 61K-C219 and A/G mode select relay 61K-C220 are located in no. 7 circuit breaker/relay panel assembly. The coils of the relays are powered by 28vdc when power is on the aircraft. The ground (enable) circuit for the coils is controlled by a ground discrete from the armament computer as a function of mode select/ deselect.

28. A/A Mode Select Relay. When A/A is selected, the armament computer sets a discrete ground that energizes the coil of 61K-C219. The three sets of relay contacts enable the A/A select light enable discretes and enable the A/A weapon select switch on rear aircraft controller grip assembly.

29. One set of contacts applies the A/A select light enable ground to the A/A light in the cockpit and another set applies ground to the rear A/A light. The deenergized set of contacts for the rear A/A light, provides the rear light test function.

30. The third set of contacts applies a ground to the A/A weapon select switch on the rear aircraft controller grip assembly. This ground enables the A/A weapon select function from the rear cockpit, when 61K-C219 has been energized.

31. A/G Mode Select Relay. When A/G is selected, the armament computer sets a discrete ground that energizes the coil of 61K-C220. The two sets of relay contacts enable the A/G select light enable discretes. The deenergized set of contacts for the rear A/G light enables the rear light test function.

32. **A/A Select Logic.** A/A master mode can be selected by discrete ground inputs to the armament computer from one of the switching functions listed:

a. Pressing A/A switch on the light switch assembly (cockpit or rear cockpit).

b. Selecting AIM-120 (AFTER AFC 253 OR 292), AIM-7, AIM-9, or gun on the A/A weapon select switch on cockpit aircraft controller grip assembly.

33. The A/A select discretes to the armament computer do the logic switch functions listed:

a. Sets A/A master mode.

b. Sets A/A mode select enable to energize 61K-C219.

c. If previously selected, removes A/G mode select enable to deenergize 61K-C220.

d. Sends the unlock command to the weapon stations with A/A weapons aboard, if all gear up and locked is true.

e. Automatically selects the priority AIM-9 station for launch.

34. **A/A Deselect Logic.** A/A master mode can be deselected by a discrete ground input to the armament computer from the A/A or A/G in cockpit or rear cockpit light switch assembly.

35. Pressing either A/A switch does the mode change logic listed:

a. Sets NAV master mode.

b. Removes the A/A mode select enable to deenergize 61K-C219.

36. Pressing either A/G switch does the mode change logic listed:

a. Sets A/G master mode.

b. Sets A/G mode select enable to energize 61K-C220.

c. Removes A/A mode select enable to deenergize 61K-C219.

37. **A/G Select Logic.** A/G master mode is selected by pressing the A/G switch on the cockpit or rear cockpit light switch assembly. The discrete A/G select input to the armament computer does the mode change logic listed:

a. Sets A/G master mode.

b. Sets A/G mode select enable to energize 61K-C220.

c. If previously selected, removes the A/A mode select enable to deenergize 61K-C219.

38. **A/G Deselect Logic.** A/G master mode can be deselected by a discrete ground input to the armament computer from one of the switching functions listed:

a. Pressing A/A switch in cockpit or rear cockpit.

b. Pressing A/G switch in cockpit or rear cockpit.

c. Selecting AIM-120 (AFTER AFC 253 OR 292), AIM-7, AIM-9 or gun using A/A weapon select switch on cockpit aircraft controller grip assembly.

39. Pressing A/A switch on either light switch assembly or selecting AIM-120 (AFTER AFC 253 OR 292), AIM-7, AIM-9, or gun using A/A weapon select switch on aircraft controller grip assembly does the switching logic listed:

a. Sets A/A master mode.

b. Sets A/A mode select enable to energize 61K-C219.

c. Removes A/G mode select enable to deenergize 61K-C220.

d. Sends the unlock command to the weapon stations with A/G weapons aboard, if all gear up and locked is true.

40. Pressing A/G switch or either light switch assembly does the switch logic listed:

a. Sets NAV master modes.

b. Removes A/G mode select enable to deenergize 61K-C220.

41. **SIMULATION MODE. (SIM).** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. Detailed description of SIM mode operation is in WP026 01.

42. **ARMAMENT COMPUTER FUNCTIONS.** The armament computer receives the discrete switching inputs from the aircraft switches and does the master mode signal processing functions listed:

a. Sets the aircraft master mode.

b. Controls the logic for selecting, deselecting, and A/A or A/G light operation.

c. Sends master mode to mission computer (MC) system on the avionic mux bus.

d. Uses master mode internally when computing weapon data and SMS functions.

e. When A/A master mode is selected, unlocks the launchers/racks with A/A weapons loaded.

f. When A/G master mode is selected, unlocks the launchers/racks with A/G weapons loaded.

g. When A/A or A/G master mode is selected lock/unlock status monitor is updated.

h. NAV mode select from the MC system overrides armament computer select logic when NAV mode select is received from the MC system, the armament computer resets A/A and A/G logic, and inhibits the trigger and weapon release logic from firing, launching, or releasing any weapon.

43. **MISSION COMPUTER SYSTEM FUNCTIONS.** The MC system receives master mode select data and processes the mode for avionic systems that require master mode status. Internal processing by the MC system provides aircraft display and mode control functions.

44. **NAV Mode Select.** The mission computer system sends NAV mode select to the armament computer when one of the conditions below exist.

a. Weight not on wheels and gear down.

b. On 161353 THRU 161528, weight on wheels and power level angle greater than 56°.

c. On 161702 AND UP, weight on wheels and power level angle greater than 60°.

d. Aircraft is in a spin mode, auto spin selected, or in spin recovery.

45. **NAV Select Logic.** During normal operation, the MC system will process aircraft master mode from the armament computer. When the armament computer is not turned on, the MC system operates in NAV mode. The MC system will operate in NAV mode when NAV mode select logic exists, or when armament computer has failed.

46. The MC system will set aircraft master mode to NAV 5 seconds after the fault timer is set. The SMS fault timer is set when:

a. SMS MUX input fault

b. SMS power fault

c. No SMS response

d. SMS message error

e. SMS parity error

f. SMS terminal fault

47. **Mission Computer Logic Processing.** The MC system uses aircraft master mode to process internal logic for the aircraft functions listed below:

a. signal data recording

b. tone enable logic

c. TACAN system

d. air data computer system

e. inertial navigation system

f. air to ground computations

g. air to air computations

h. horizontal indicator displays

i. INS align/bit displays

j. data link system vector mode target designation

k. data link system automatic carrier landing (ACL) mode

l. stores module

m. FLIR module

n. LDT module

o. radar module

48. Signal Data Recording. The MC system processes recorded messages. When aircraft master mode is set to A/A and second trigger detent is actuated, air to air data is updated and sent to the Signal Data Recorder R0-508/ASM-612. When aircraft master mode is set to A/G and COMM 1 tone or COMM 2 tone is enabled, air to ground data is updated and sent to the signal data recorder. When aircraft master mode is set to NAV, HARM under release discrete and weapon release enabled air to ground data is updated and sent to the signal data recorder.

49. Tone Enable Logic. COMM tone is enabled when aircraft master mode is set to A/G, master arm switch is set to ARM, the selected weapon code is set for HARM, Bomb, or Rocket, and weapon release is enabled.

50. TACAN System. The navigation steering data is computed and processed by the MC system. When aircraft master mode is set to NAV and waypoint steering or TACAN steering is valid, steering half reference dot X position, situation steering rotation, and situation steering X position is computed and sent to displays.

51. Air Data Computer System. The MC system sets the aircraft weapon code equal to the aircraft master mode and sends this data to the air data computer system. When aircraft master mode is set to NAV, A/A, or A/G, the aircraft weapon code is set to NAV, A/A, or A/G.

52. Inertial Navigation System. When aircraft master mode is set to NAV and inflight align selected, the MC system computes and processes radar or ADC velocity for INS. The MC system sends inflight align data to radar and sets radar mode command to precision velocity update (PVU).

53. Air To Ground Computations. When the aircraft master mode is set to NAV or A/G, the MC system computes data required for an air to ground attack using guns, guided weapons, mines, or bombs.

54. Air To Air Computations. When the aircraft master mode is set to A/A, the MC system computes data required for pre-launch of A/A missiles. A/A MC system routines are also used to compute data for A/A and A/G gun and A/G rockets.

55. Horizontal Indicator Displays. When aircraft master mode is set to NAV or A/G, the MC system computes and processes the sensor box, manual display instructions, and footprint symbols to the horizontal indicator display.

56. INS Align/BIT Displays. When aircraft master mode is set to NAV, the MC system processes the align display format and sends it to the horizontal indicator and BIT displays.

57. Data Link System Vector Mode Target Designation. When aircraft master mode is set to NAV or A/G, the MC system processes the push-button, legend, target multiple, target designate number, and the link 4 designate command.

58. Data Link System Automatic Carrier Landing (ACL) Mode. When aircraft master mode is set to NAV, the MC system processes the HSI second push-button label ACL, DL mode, and ACL logic data.

59. Stores Module. When aircraft master mode is set to A/A, the MC system initializes A/A mode, displays gun options, and processes and displays gun rate selection for A/A gun operations. When MC system is

in A/A mode, the stores are inventoried and stations are labeled, count and rack/launcher is displayed.

60. When aircraft master mode is set to A/G or NAV, the weapon select menu pushbutton status, tone selection, SMS A/G program and data selections are displayed. The MC system processes and displays A/G weapon rocket options, and gun selection and status when the MC system completes processing A/G weapon and stores pushbutton selections.

61. FLIR Module. When aircraft master mode is set to A/A, the FLIR pushbutton cage legend is not displayed. When aircraft master mode is set to A/G or NAV, the moving target, track/MVTGT pushbutton box, memory track notice, sequence/FOV flag, and track enable are processed.

62. LDT Module. When aircraft master mode is set to A/A, the LDT pushbutton cage legend is not displayed.

63. Radar Module. When aircraft master mode is set to NAV, the MC system processes the SURF display when SURF mode is selected, AIR display when Air mode is selected, mode command to RWS, and HOTAS selection index to surface. When aircraft master mode set to A/A, the MC system processes the A/A weapon characters, master arm cue, and missile time of flight. When aircraft master mode set is to A/G, the MC system processes the aircraft heading digits.

64. **DISPLAYS.** The MC system uses aircraft master mode data from the armament computer to enable A/A, A/G or NAV display symbology. A/A, A/G and NAV symbology is displayed on the stores and HUD displays.

65. **Stores Display.** Stores display is selected when STORES pushbutton is pressed on the MENU display. Stores display is also selected when A/A or A/G aircraft master mode is selected. Store display functions shown in figure 1 are listed below:

a. weapon select options

b. A/G release ready (RDY)

c. A/G program pushbutton set (program pushbutton legends and wingform display)

d. A/G weapon program

66. Weapon Select Options. When aircraft master mode is set to A/G or NAV the A/G weapon select options are displayed below the top row of pushbutton switches. Refer to armament computer weapon insertion panel store codes and weapon displays table in WP015 00. Pressing the pushbutton switch selects the weapon and a box is displayed around the weapon acronym.

67. A/G Release Ready (RDY). A/G ready status is determined by the armament computer and identified to the MC system for display of the ready status. RDY indication is displayed below the weapon selected when the armament computer sends A/G ready to the MC system.

68. A/G Program Pushbutton Set. With no stores loaded, selecting STORES on the MENU display, or A/A or A/G aircraft master mode will initialize the stores display to no weapon mode (wingform only). With MK82B and MK83P bombs loaded and A/G or NAV aircraft master mode selected, the bomb types and count will be displayed on the wingform. With AIM-7 sparrows loaded and A/A aircraft master mode selected, the missile symbol will be displayed on the wingform.

69. A/G Weapon Program. The bomb program is stored in the armament computer. Bomb programming may be done in A/G or NAV aircraft master mode. The bomb program is transmitted from the armament computer to the MC system when a bomb is selected.

70. **HUD DISPLAY.** The HUD displays aircraft data for steering and weapon release. The aircraft master mode will enable A/G, A/A and NAV HUD displays as shown in figure 1 and listed below:

a. A/G HUD display

(1) weapon/mode

b. A/A HUD display

(1) weapon type and weapon count

(2) weapon field of view

c. NAV HUD display

(1) horizon line

(2) bank scale

(3) vertical velocity

(4) angle of attack scale

71. A/G HUD Display. When the aircraft master mode is set to A/G, the last selected A/G weapon or

delivery mode will be displayed as shown in figure 1. Additional mode independent symbology is also displayed.

72. A/A HUD Display. When the aircraft master mode is set to A/A, the last selected A/A weapon (9L, 9M, 7F, 7M, GUN, or, for aircraft AFTER AFC 253 OR 292, AA, AB, AC, AM, AT, BT, CT, CM, 7H) and count will be displayed with the weapon field of view as shown in figure 1. Additional mode independent symbology is also displayed.

73. NAV HUD Display. When the aircraft master mode is set to NAV, the bank scale, horizon line, vertical velocity and angle of attack scale will be displayed as shown in figure 1. Additional mode independent symbology is also displayed.

74. HUD Symbology. Table 1 lists the HUD display weapon symbology related to aircraft master mode and reference work package. For detailed HUD symbology operation, refer to reference work package.

75. **Store Display Symbology.** Table 2 lists stores display weapon symbology related to aircraft master mode and reference work package. For detailed stores display symbology operation, refer to reference work package.

76. **HI Display Symbology.** Table 3 lists HI weapon symbology related to aircraft master mode and reference work package. For detailed HI symbology operation, refer to reference work package.

Table 1. HUD Symbology

Title/Display	Aircraft Master Mode	Reference Work Package
Sidewinder Mode Radar In Search RWS - Range While Search VS - Velocity Search Radar in Track TWS - Track While Scan STT - Single Target Track WACQ - Wide Acq- cage/ uncage VACQ - Vertical Acq AACQ - Auto Acq FACQ - Fast Acq BST NIRD - Normalized In Range Display	A/A	WP046 00
Sparrow Mode Radar In Search RWS - Range While Search VS- Velocity Search	A/A	WP048 00

Table 1. HUD Symbology (Continued)

Title/Display	Aircraft Master Mode	Reference Work Package
Radar in Track TWS- Track While Scan STT- Single Target Track WACQ - Wide Acquisition - cage/uncage VACQ - Vertical Acquisition AACQ - Auto Acquisition FACQ- Fast Acquisition BST NIRD - Normalized In Range Display		
AMRAAM Mode 2 Radar In Search RWS - Range While Search VS - Velocity Search Radar in Track TWS - Track While Scan STT - Single target track WACQ - Wide Acquistion - cage/uncage VACQ - Vertical Acquisition AACQ - Auto Acquisition FACQ - Fast Acquisition BST - Boresight NIRD - Normalized In Range Display	A/A	A1-F18AC-740-110, WP071 00
Bomb Mode OAP Designated	A/G or NAV	A1-F18AC-740-110, WP050 00
Bomb Mode Pull-Up/Breakaway X CCIP Mode Auto Mode Manual Mode	A/G	A1-F18AC-740-110, WP050 00
Harpoon Mode	A/G	A1-F18AC-740-110, WP059 00
Maverick Mode	A/G	A1-F18AC-740-110, WP058 00

Table 1. HUD Symbology (Continued)

Title/Display	Aircraft Master Mode	Reference Work Package
Mines	A/G	A1-F18AC-740-110, WP051 07
Rocket Mode CCIP Mode Manual Mode	A/G	A1-F18AC-740-110, WP060 00
HARM Mode Target of Opportunity (TOO) Self Protect (SP) Pre-Briefed (PB)	A/G Mode Independent A/G	A1-F18AC-740-110, WP057 00
Master Arm Safe/Arm	A/A or A/G	WP025 00
Shoot Cue	A/A or A/G	WP033 00
Target Designation	A/A or A/G	WP041 01
Shrike Mode [1] Auto Mode Manual Mode	A/G or NAV	A1-F18AC-740-110, WP055 01
AGM-84H SLAM ER Mode [2] Target of Opportunity (TOO) Pre-Planned (PP)	A/G A/G A/G	A1-F18AC-740-110, WP075 00
AGM-154 JSOW Mode [2] Target of Opportunity (TOO) Pre-Planned (PP)	A/G A/G A/G	A1-F18AC-740-110, WP077 00
GBU-31 JDAM Mode [2] Target of Opportunity (TOO) Pre-Planned (PP) Straight Line (SL)	A/G A/G A/G A/G	A1-F18AC-740-110, WP079 00

NOTES

[1] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[2] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 2. Stores Display Symbology

Title/Display	Aircraft Master Mode	Reference Work Package
Menu Display Stores Display	Mode Independent	WP021 00
SMS Maintenance BIT Memory Inspect	Mode Independent	WP037 00
SMS SIM Mode	Mode Independent	WP026 01
SMS Wingform and Stores Loading Gun Rounds Remaining Master ARM/SAFE Status HARM SP Pullback Indication Unlock Option HARM Override Option	Mode Independent	WP037 00
Sidewinder Mode	A/A	WP046 00
Sparrow Mode	A/A	WP048 00
AMRAAM Mode ◀2	A/A	A1-F18AC-740-110, WP071 00
SMS Weapon Programming Mechanical Fuzing Electrical Fuzing Bomb Selection MER LOAD Option	 A/G or NAV A/G or NAV A/G or NAV A/G A/G or NAV	 A1-F18AC-740-110, WP051 03 WP045 01 WP044 00 A1-F18AC-740-110, WP050 00 A1-F18AC-740-110, WP050 00
Advanced Data Link Pod AWW-13 ◀2	A/G	A1-F18AC-740-110, WP053 00
SMS HARM Selected HARM Self Protect (SP) Display HARM Target of Opportunity (TOO) HARM TOO Mode Display Scan Option Selected HARM Pre-Briefed (PB) Mode Display	A/G	A1-F18AC-740-110, WP057 00

Table 2. Stores Display Symbology (Continued)

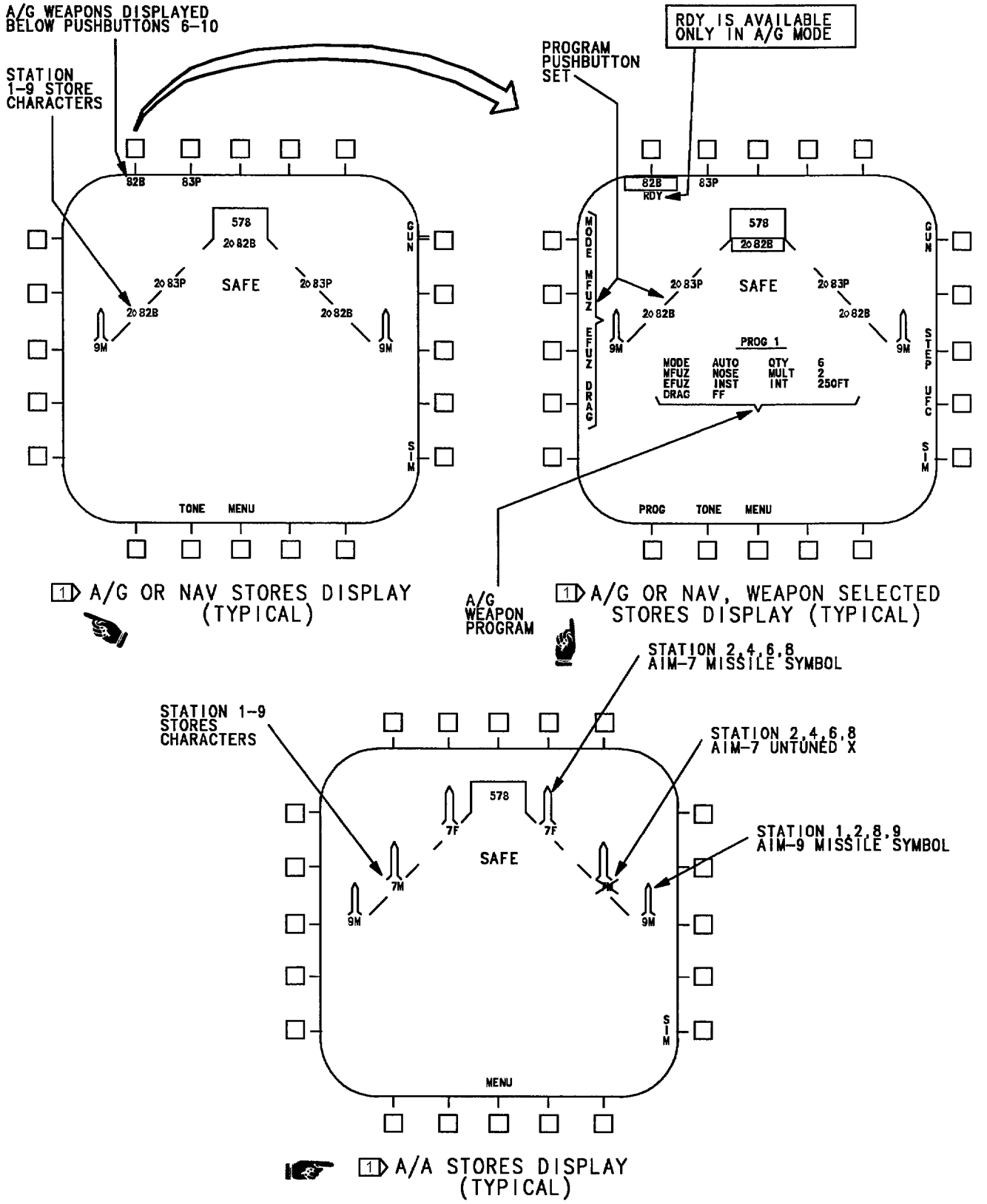
Title/Display	Aircraft Master Mode	Reference Work Package
SMS Rocket Selected	A/G	A1-F18AC-740-110, WP060 00
SMS Harpoon Selected SAF DSBL LOS Mode Display	A/G	A1-F18AC-740-110, WP059 00
SMS Maverick Selected	A/G	A1-F18AC-740-110, WP058 00
SMS Mines Selected	A/G	A1-F18AC-740-110, WP051 07
SMS Shrike Selected [1]	A/G or NAV	A1-F18AC-740-110, WP055 01
SMS AGM-84H SLAM ER Selected [2]	A/G or NAV	A1-F18AC-740-110, WP075 00
SMS AGM-15 JSOW Selected [2]	A/G or NAV	A1-F18AC-740-110, WP077 00
SMS GBU-31 JDAM Selected [2]	A/G or NAV	A1-F18AC-740-110, WP079 00

NOTES

[1] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.
[2] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

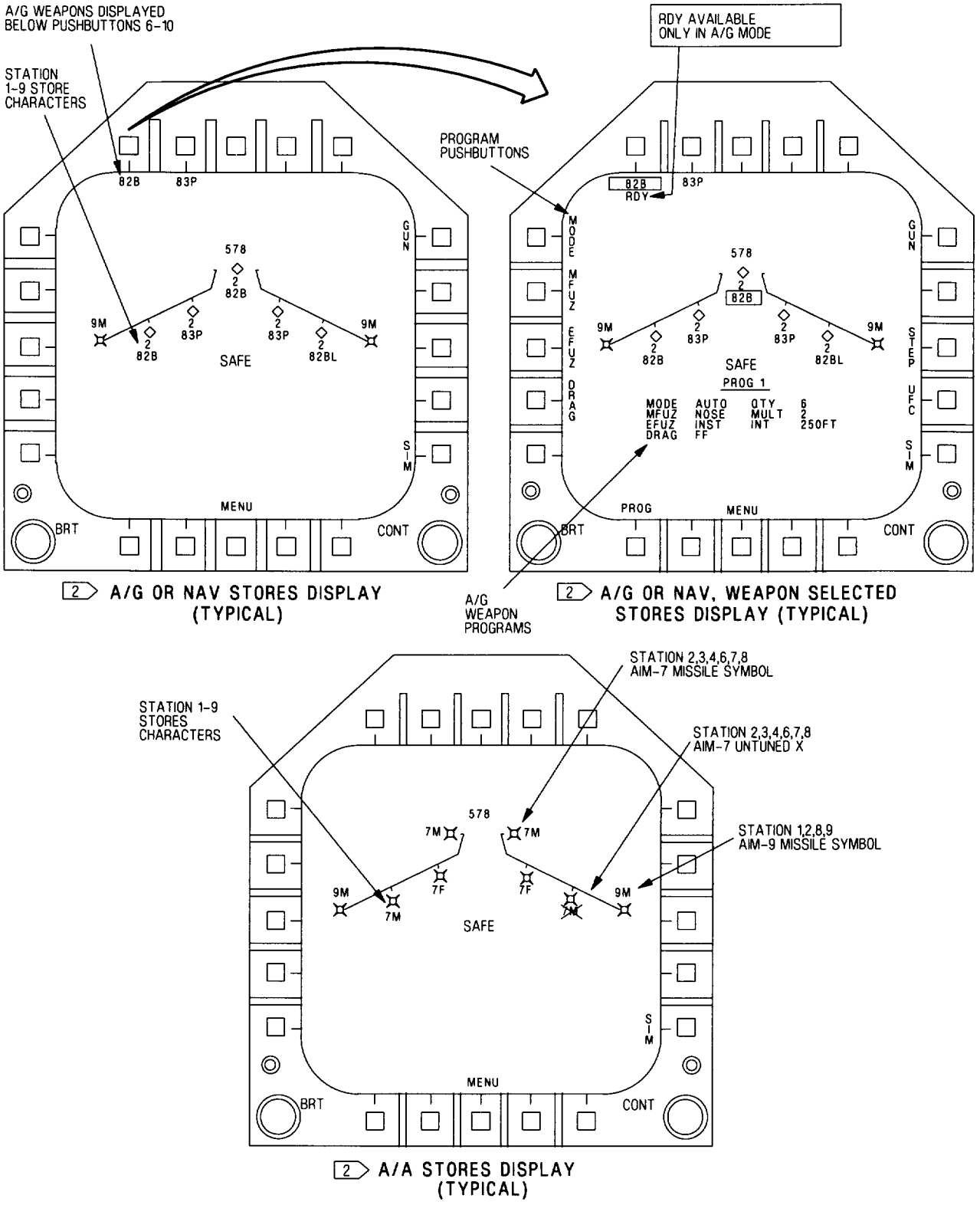
Table 3. HI Display Symbology

Title/Display	Aircraft Master Mode	Reference Work Package
SMS Target Designated OAP Designated	A/G or NAV	WP041 01



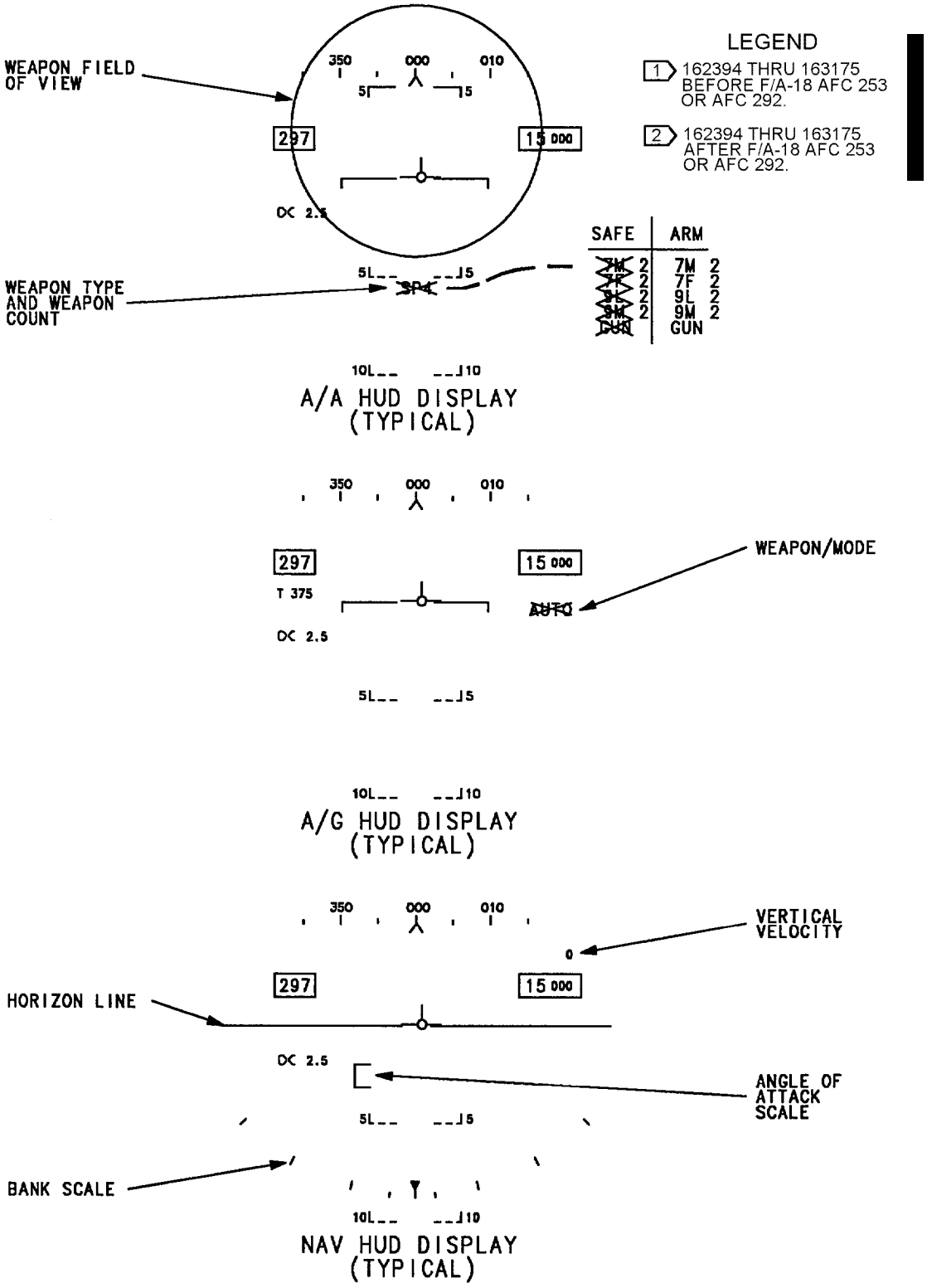
01900101

Figure 1. Aircraft Master Mode Select Displays (Sheet 1)



01900102

Figure 1. Aircraft Master Mode Select Displays (Sheet 2)



01900103

Figure 1. Aircraft Master Mode Select Displays (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - AIRCRAFT MASTER MODE SELECT SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

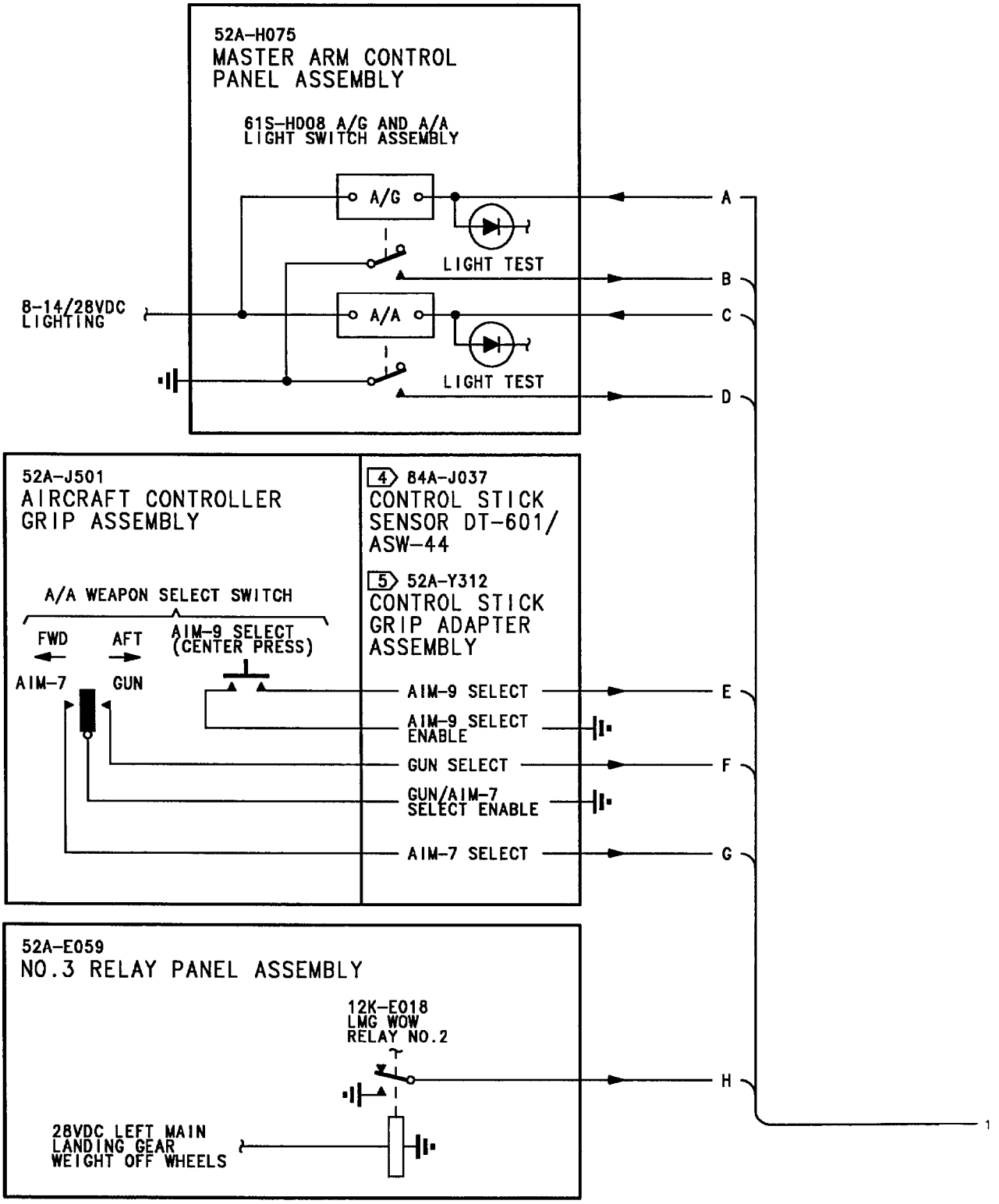
Subject	Page No.
F/A-18A - Aircraft Master Mode Select Simplified Schematic, Figure 1	2
F/A-18B - Aircraft Master Mode Select Simplified Schematic, Figure 2	6
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 27	-	Leading Edge Flap/Control Stick Changes (ECP MDA-F/A-18-00044)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

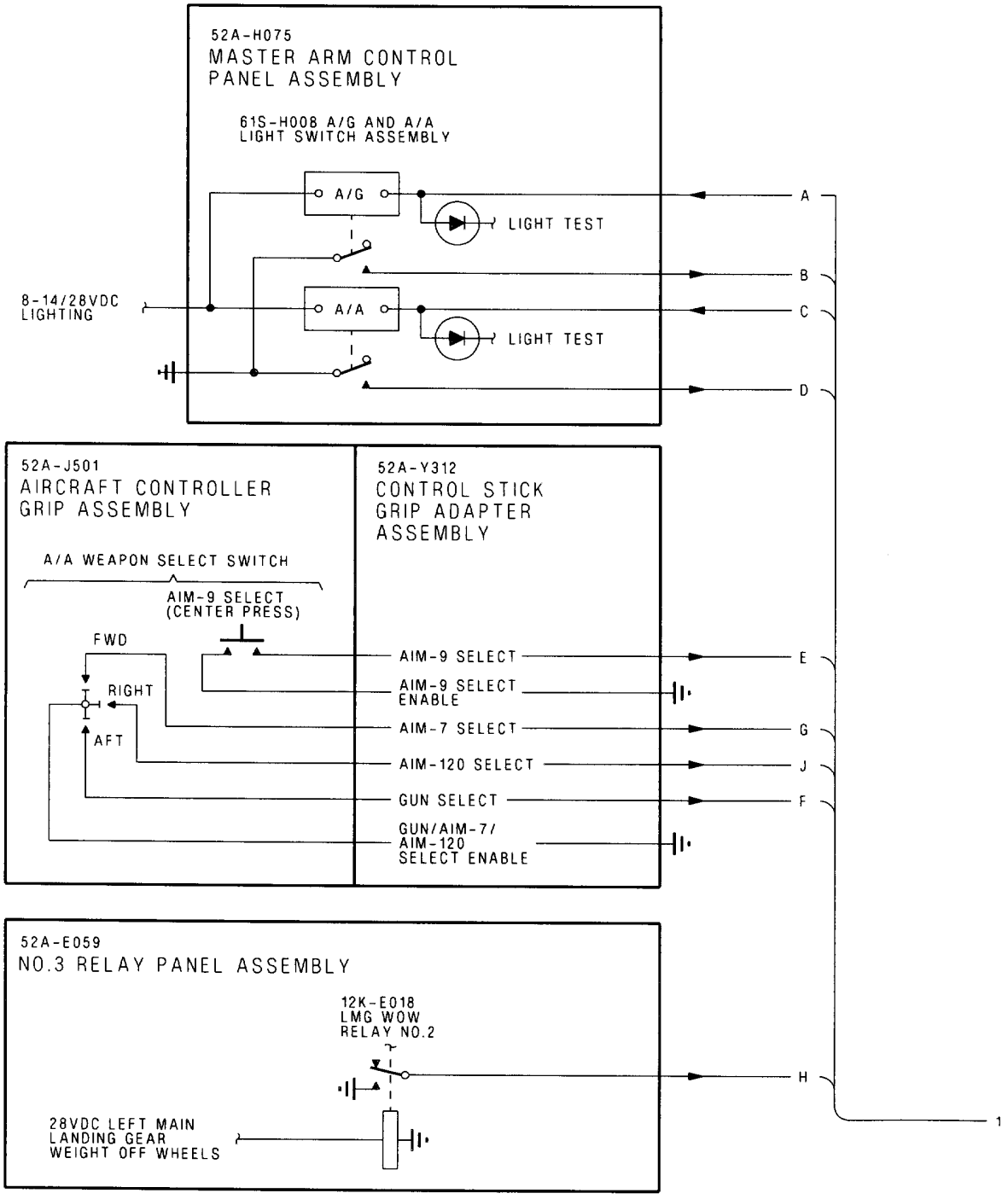
2. The simplified schematics in this work package are provided to support the data in WP019 00.



161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292 ■

02000101

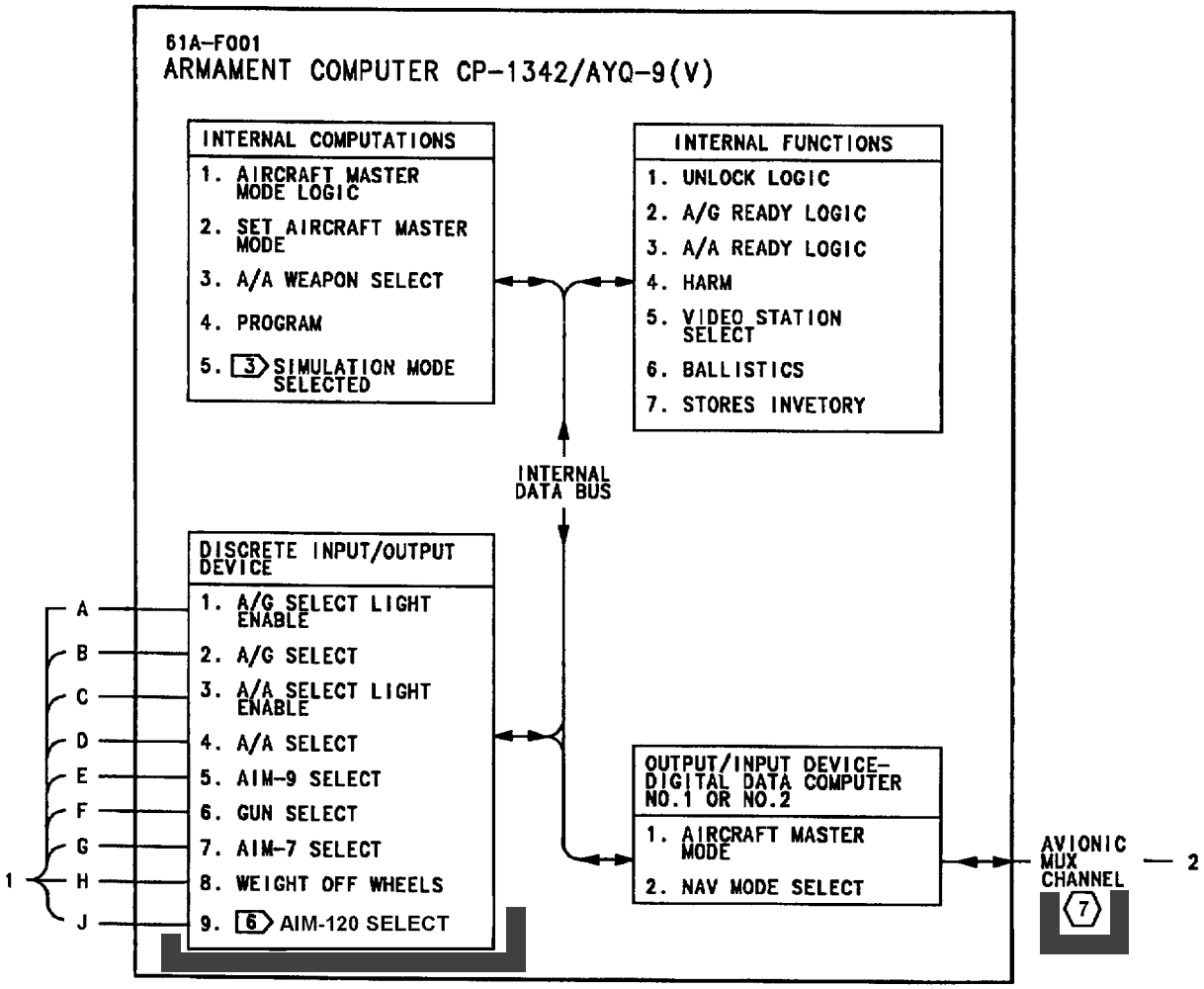
Figure 1. F/A-18A - Aircraft Master Mode Select Simplified Schematic (Sheet 1)



161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

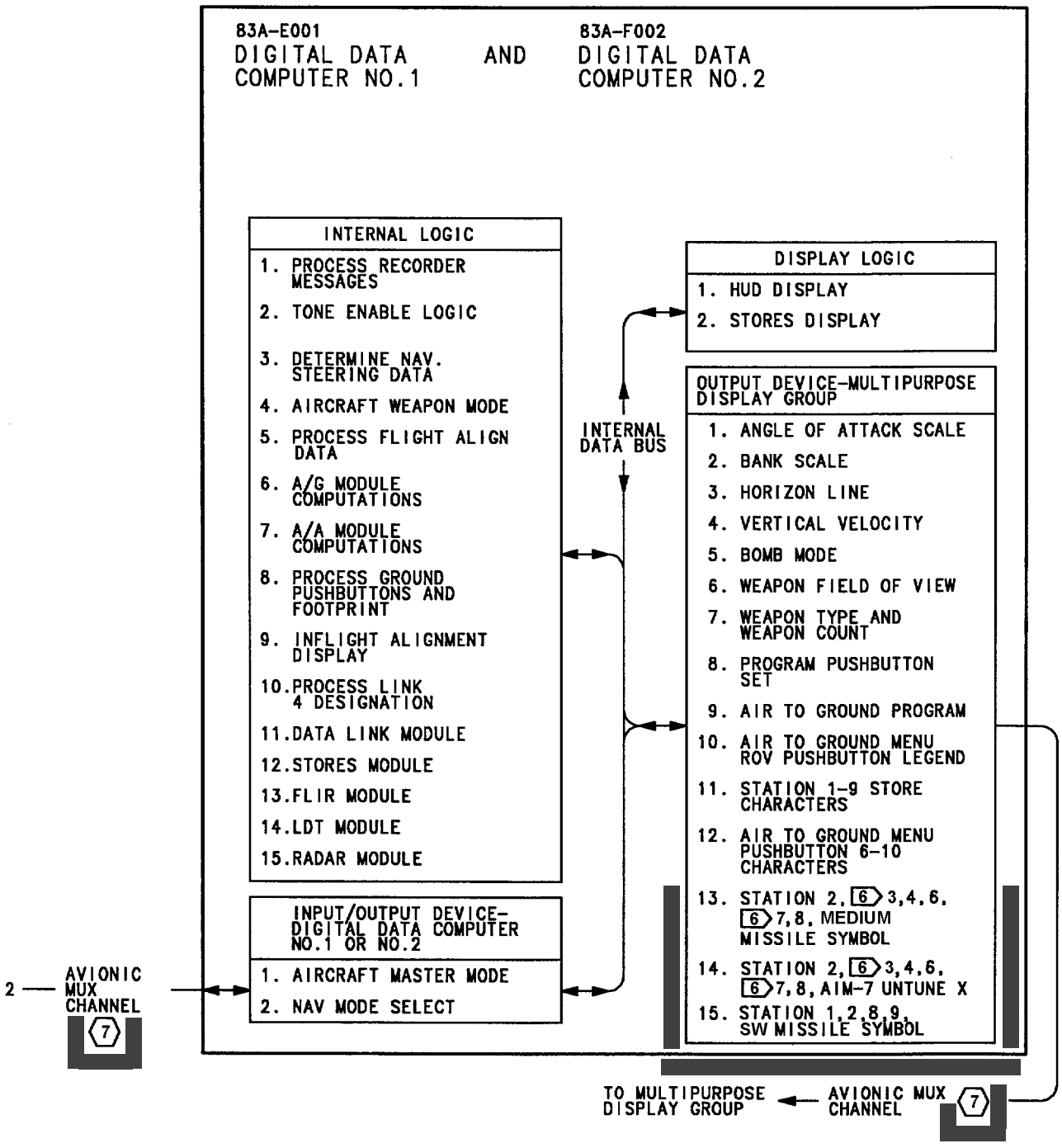
02000102

Figure 1. F/A-18A - Aircraft Master Mode Select Simplified Schematic (Sheet 2)



02000103

Figure 1. F/A-18A - Aircraft Master Mode Select Simplified Schematic (Sheet 3)



02000104

Figure 1. F/A-18A - Aircraft Master Mode Select Simplified Schematic (Sheet 4)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2. NONSTANDARD SYMBOLS: SEE WP002 01.

[3] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 84A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 84A AND UP (A1-F18AC-SCM-000).

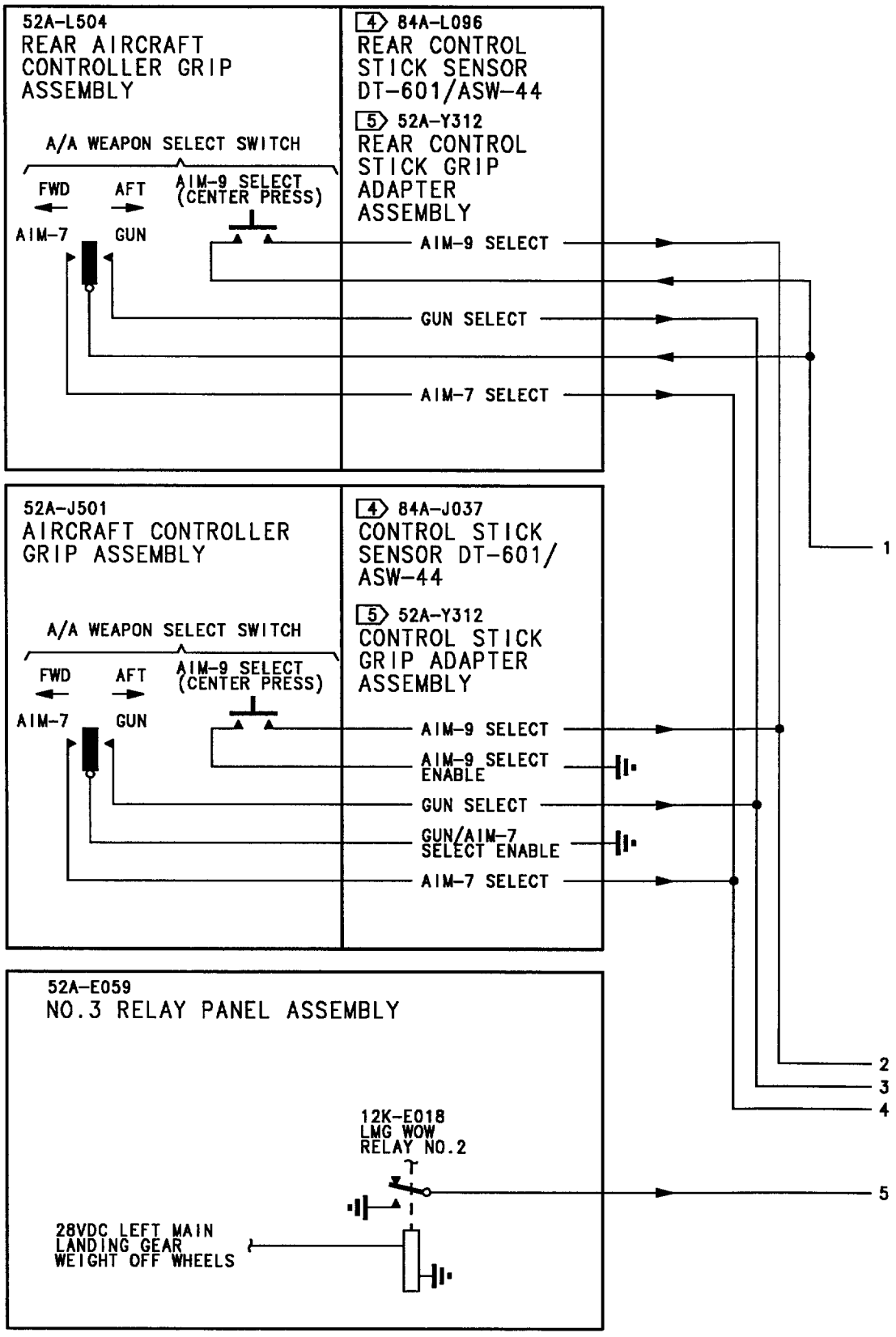
[4] 161353 THRU 161519 BEFORE F/A-18 AFC 27.

[5] 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27.

[6] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR F/A-18 AFC 292.

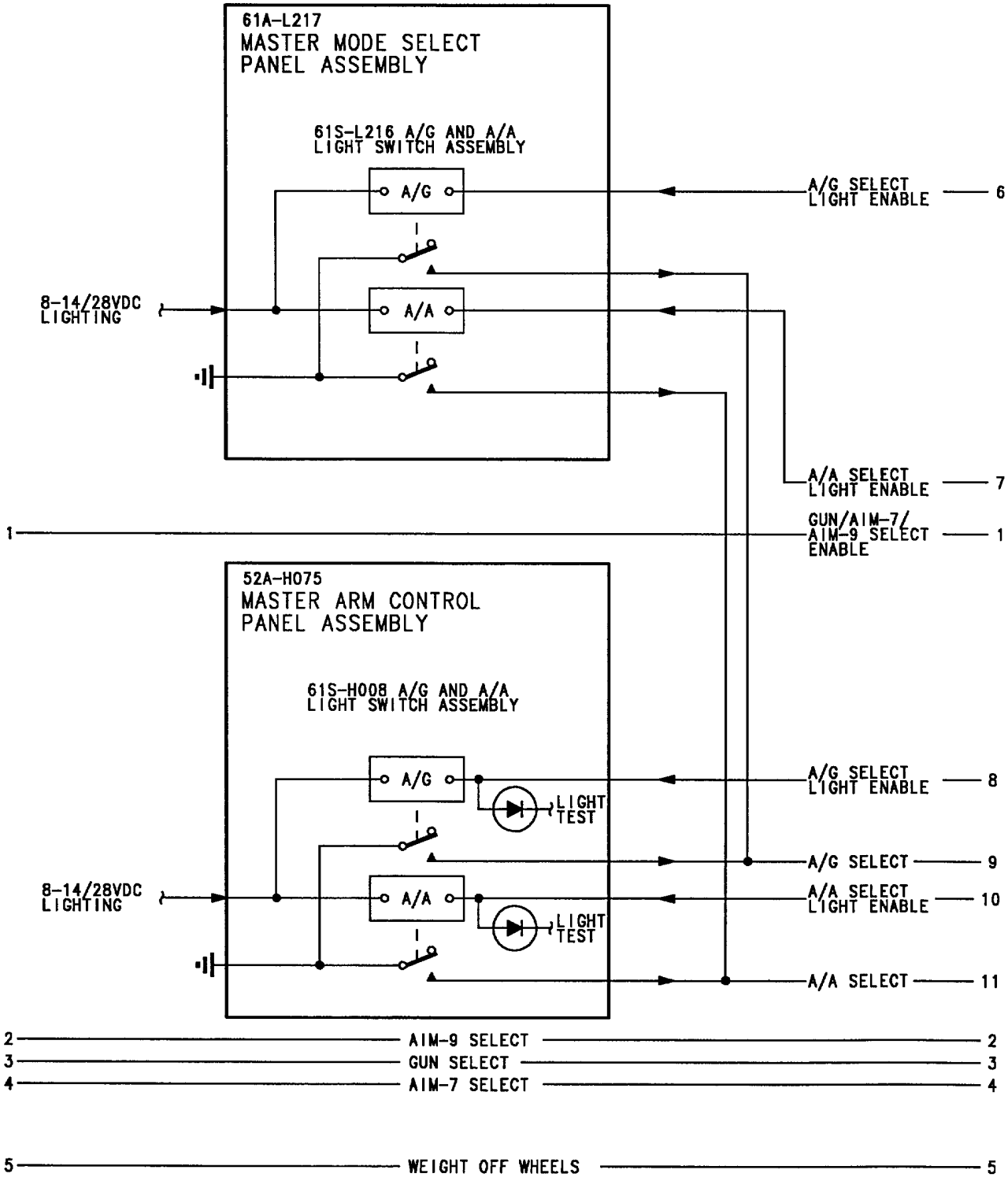
〈7〉 SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 1. F/A-18A - Aircraft Master Mode Select Simplified Schematic (Sheet 5)



02000201

Figure 2. F/A-18B - Aircraft Master Mode Select Simplified Schematic (Sheet 1)



02000202

Figure 2. F/A-18B - Aircraft Master Mode Select Simplified Schematic (Sheet 2)

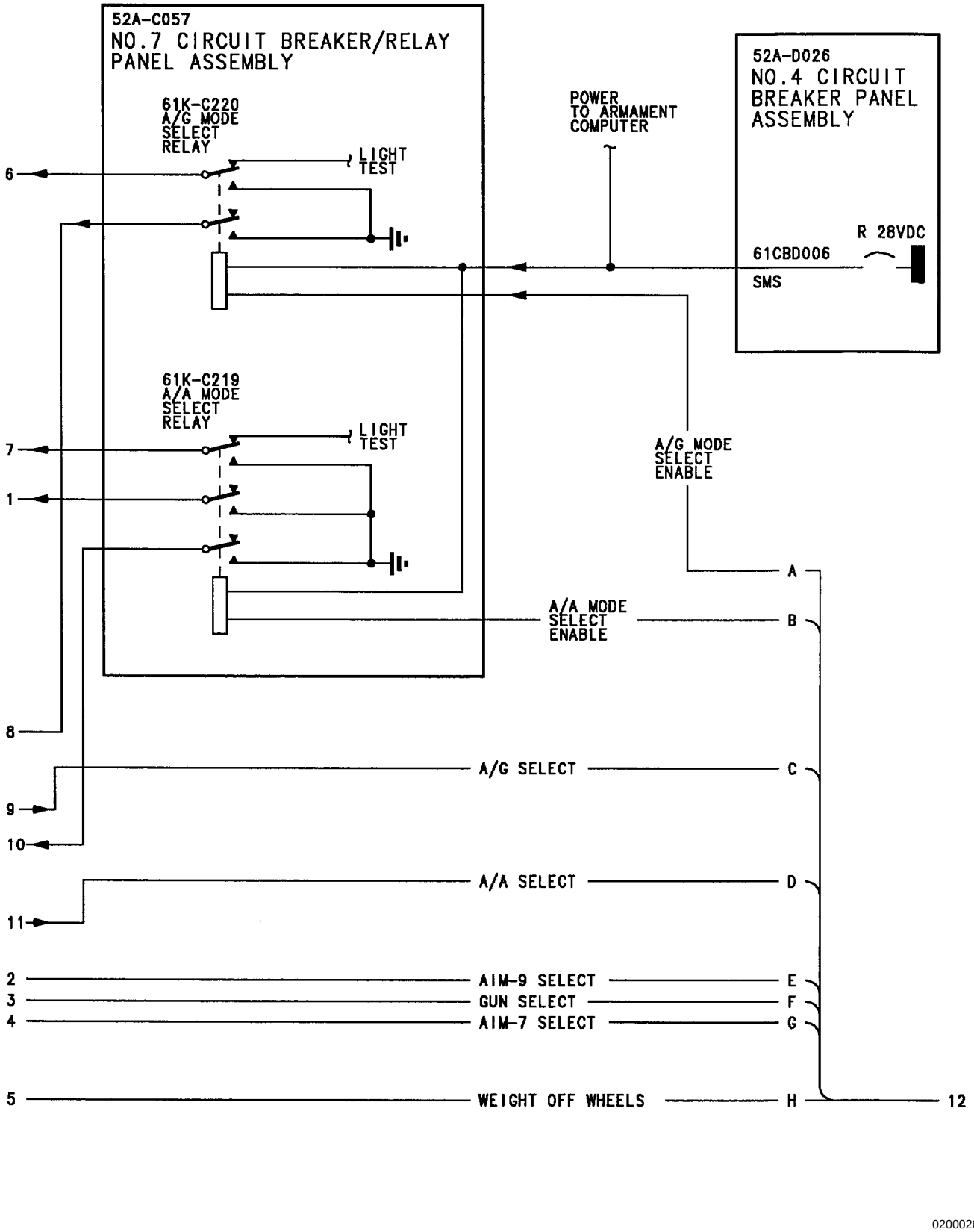
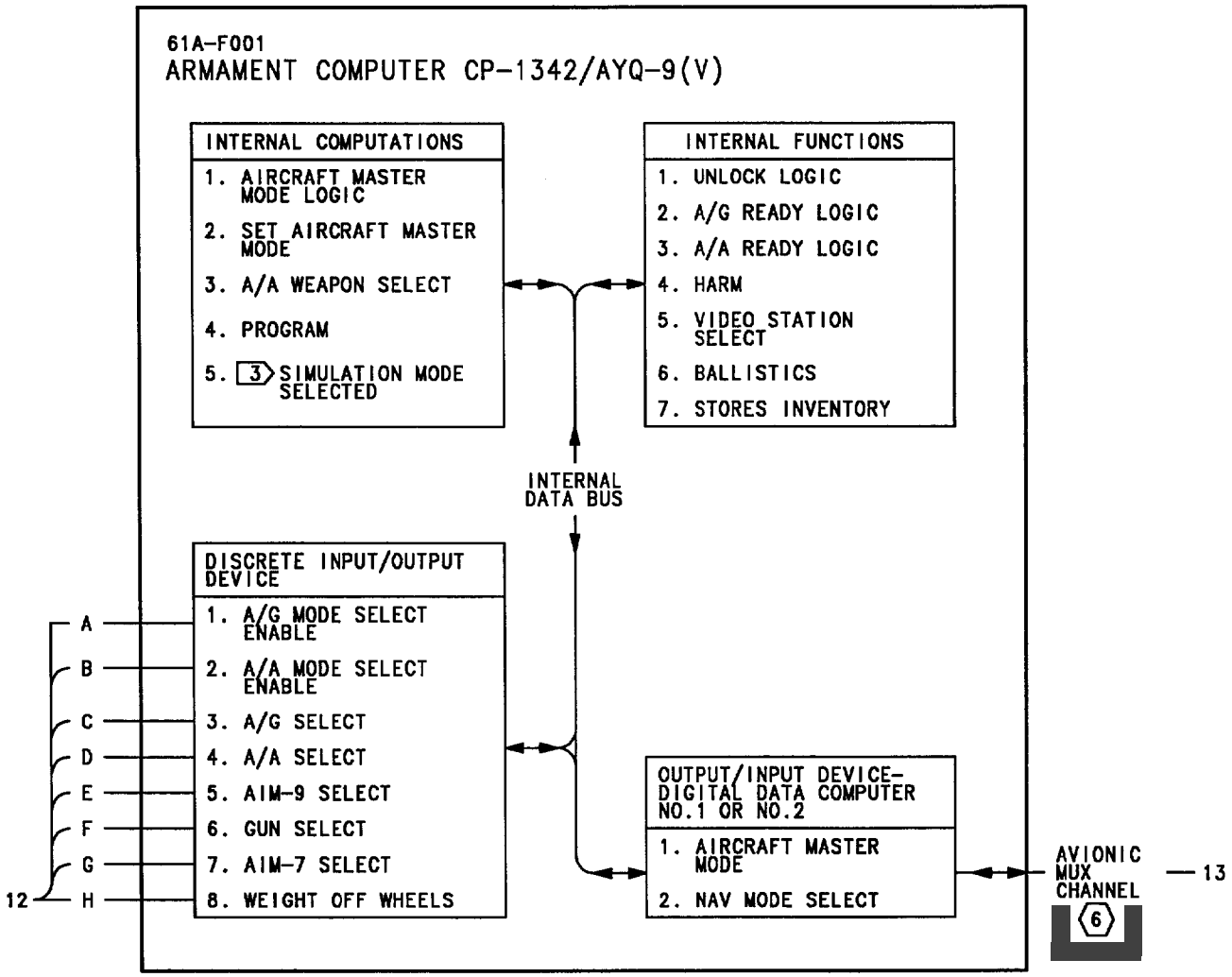
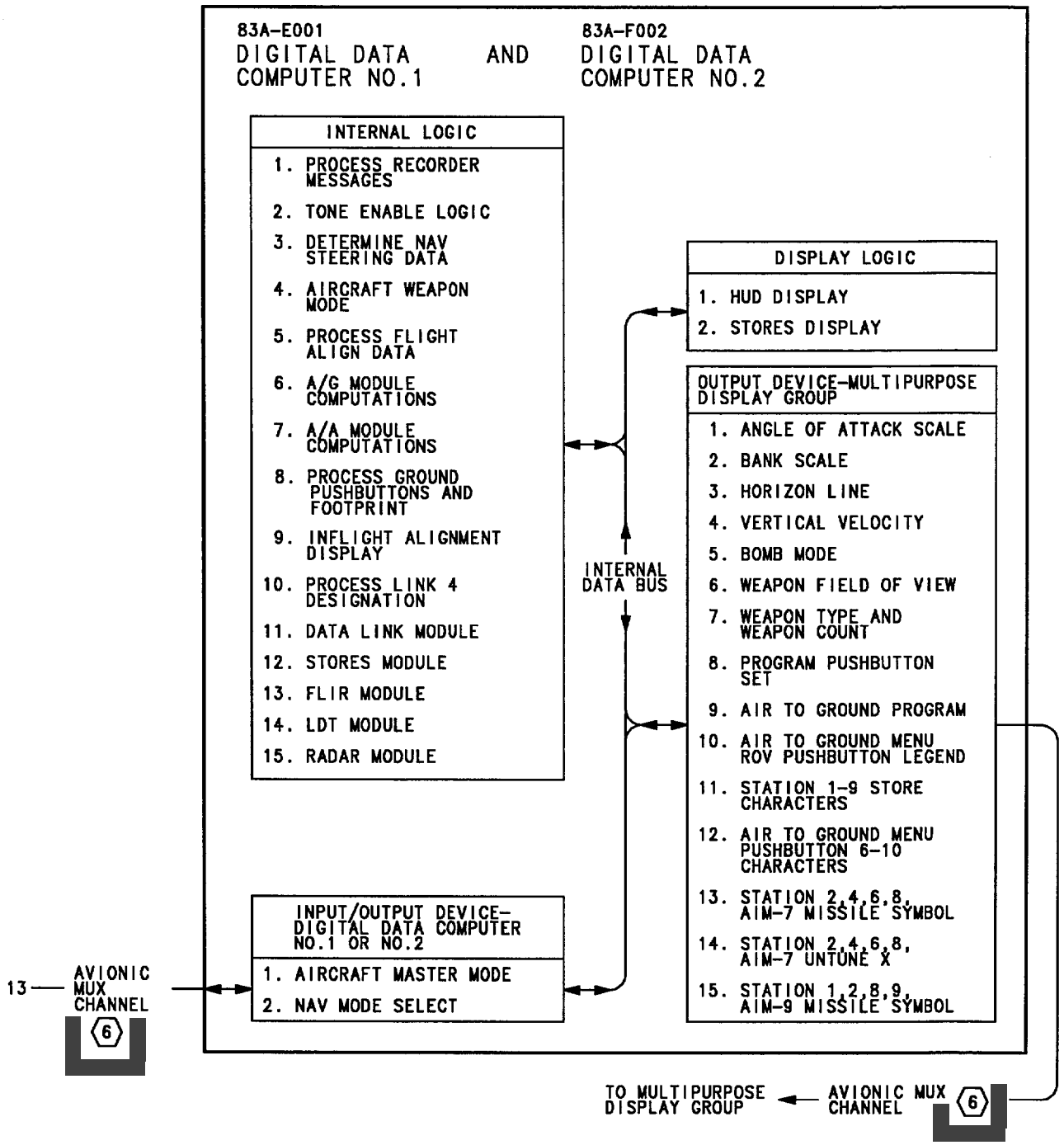


Figure 2. F/A-18B - Aircraft Master Mode Select Simplified Schematic (Sheet 3)



02000204

Figure 2. F/A-18B - Aircraft Master Mode Select Simplified Schematic (Sheet 4)



02000205

Figure 2. F/A-18B - Aircraft Master Mode Select Simplified Schematic (Sheet 5)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2. NONSTANDARD SYMBOLS: SEE WP002 01.

3 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 84A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 84A AND UP (A1-F18AC-SCM-000).

4 161353 THRU 161519 BEFORE F/A-18 AFC 27.

5 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27.

6 SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 2. F/A-18B - Aircraft Master Mode Select Simplified Schematic (Sheet 6)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - STORES INVENTORY

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Schematic - Stores Inventory Simplified WP022 00
Weapon Control Systems A1-F18AC-740-500
Stores Inventory Schematic WP015 00

Alphabetical Index

Subject	Page No.
Armament Computer Control	2
Displays	6
Introduction	1
Mission Computer System Interface	5
Station/Weapon Status Displays - Table 1	7
Stores Inventory Display, Figure 1	8
Stores Inventory Operation	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) stores inventory operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP022 00 for the stores inventory simplified schematic. The schematic shows the interface between the weapon station, armament computer, and mission computer (MC) system. The weapon stations shown are typical of the nine weapon stations that are monitored by the inventory function.

4. The simplified schematic lists armament computer and MC system functions used for stores inventory. Stores inventory schematic (A1-F18AC-740-500, WP015 00) shows detailed stores inventory operation.

5. Figure 1 shows displays related to stores inventory operation.

6. Refer to WP014 00 for stores inventory component locations.

7. STORES INVENTORY OPERATION.

8. The stores inventory function monitors the weapon station command signal encoder-decoders, launchers, racks, stores, and weapons controlled by the SMS. The inventory data is used for the Armament Computer CP-1342/AYQ-9(V) computations and is sent to the MC for display. Inventory displays are shown on the left Digital Display Indicator (DDI) IP-1317( ), right DDI and Head-Up Display Unit (HUD) AN/AVQ-28.

9. Stores inventory operation in this work package is provided as listed:

a. armament computer control

b. mission computer system interface

c. displays

10. **ARMAMENT COMPUTER CONTROL.** The armament computer provides the stores inventory status function for the SMS at power on, when master mode is changed, after a weapon release on priority station, after emergency jettison, inflight power transients, and when all gear up and locked changes state. The armament computer provides the stores inventory functions listed:

a. system status

b. weapon select inventory logic

c. inventory status monitor

11. **System Status.** When the SMS is turned on, the stores inventory determines system configuration and status. This function determines the number of encoder-decoders installed on the aircraft and the operational status of the SMS components. This operation is provided by the power on built-in test (BIT).

12. Power on BIT provides the initialization functions as listed:

a. armament computer status

b. encoder-decoder configuration and status

c. weapon initialization

13. Armament Computer Status. During power on BIT, the internal functions of the armament computer are tested. The BIT determines the ability of the armament computer to control the encoder-decoders and communicate with the MC system. When the armament computer power on BIT is complete, the encoder-decoders are tested.

14. Encoder-Decoder Configuration and Status. The armament computer monitors encoder-decoder BIT to determine status of the nine encoder-decoders. The encoder-decoder status is listed below:

a. OFF - No Store ident

b. OFF - Store ident

c. OFF - BIT or weapon fail

d. OFF - No encoder-decoder installed

e. ON - BIT/station ident same as selected weapon

15. When the armament computer identifies an encoder-decoder installed, the encoder-decoder is turned on. If communications are established on the armament mux bus, the armament computer does the encoder-decoder BIT. If the wing pylon encoder-decoder is part number 7959350-110, then it contains an A-14 card and is capable of communicating with Harpoon, SLAM and SLAM ER missiles and JSOW and JDAM weapons. When the encoder-decoder is turned on, the A-14 card enters self test and upon completion sends a message to the armament computer that it is present and waiting for commands. During BIT the encoder-decoders monitor weapon station idents and store aboard signals of the bomb racks. This data is sent to the armament computer to identify the weapon station configuration and status.

16. Weapon Initialization. The armament computer uses the encoder-decoder data to enable the weapon

initialization functions for the weapon station. These functions are listed below:

a. Weapon Insertion Panel Switch Logic - The armament computer weapon insertion panel has ARMAMENT and FUZE switches. These switches are set when the aircraft is loaded to show the store and fuze types for the weapons on the weapon stations. The switch settings are monitored periodically by the inventory logic. Switch functions are listed below:

(1) An ARMAMENT switch is provided for each of the five pylon stations as listed:

L OUTBD - weapon station 2
L INBD - weapon station 3
CL - weapon station 5
R INBD - weapon station 7
R OUTBD - weapon station 8

(2) The WING TIP ARMAMENT switch is set to show the configuration of the two wingtip AIM-9 sidewinders, AN/ASM-464 AIM-9 Missile Test Set or end to end test adapter.

(3) The switch codes (settings) are shown in the Armament Computer Weapon Insertion Panel Store Codes, and Weapon Displays for stations 1 and 9 table in WP015 00. When a store is not loaded, the switches are set to zero. When set to a store code, the display acronym is displayed on the DDI store display.

(4) The two fuselage weapon stations (4 and 6) do not have ARMAMENT switches since they can only carry AIM-7 sparrow and AIM-120 AMRAAM missiles. In the case where an AIM-7 ident is detected on station 4 or 6, the Armament Computer powers up the weapon and measures the missile designation voltage to determine whether the Sparrow missile is an AIM-7F or AIM-7M.

(5) AFTER AFC 253 OR 292, AIM-7M H-build (7H on the display) are detected as an AIM-7M and must be manually upgraded to 7H on the DDI. If 1760 interface is detected on stations 4 or 6, the Armament Computer powers up the weapon and establishes armament mux communication. The weapon will identify itself as an AIM-120 AMRAAM Missile or an AN/AWN-96 Test Set (AW96 on the DDI).

(6) When a weapon code and station ident are different, or a BRU-33 store aboard outboard with no store aboard inboard, a load advisory is sent to the MC system for display.

(7) The five pylon weapon stations have FUZE switches for setting the nose (N) and tail (T) fuse codes for weapons that need fuzing. The switch settings are shown in the Fuze Types and Armament Computer Fuze Codes table in WP015 00.

(8) When a fuze code and weapon are not compatible, a fuze fault is sent to the MC system. The fuze option for the bomb is not displayed on the program.

b. Weapon Power Control Logic - When the encoder-decoder idents indicate that a store is on the weapon station that requires aircraft power, the armament computer sets the weapon power control. The weapon station power control discretes turn on the station power relays that send the aircraft power to the weapon. With power on the weapon, the weapon status can be tested.

c. Identification of Harpoon and SLAM missiles is by a configuration value sent in a mux message. The encoder-decoder must be part number 7959350-110 or later to have the A-14 card installed that is necessary to communicate with the missiles. If the A-14 card is not there, then harpoon and SLAM will only have line of sight delivery capabilities.

d. If a 1760 interface is detected on stations 2, 3, 5, 7, or 8 (weapon insertion panel code F0), the Armament Computer powers up the weapon and establishes armament mux communication. The weapon will identify itself as an AWW-13 data link pod, SLAM ER, JSOW, JDAM, AIM-120 AMRAAM Missile or an AN/AWN-96 Test Set (AW96 on the DDI).

e. Weapon Status - With power applied to the weapon, the weapon status is monitored by the encoder-decoder and sent to the armament computer. These status signals show the operational status of the weapon. AGM-84 Harpoon, SLAM, SLAM ER, AGM-88 HARM, JSOW, JDAM, AIM-120 AMRAAM, AIM-9, AWW-13 and AGM-65 Maverick provide ready status data and the AIM-7 sparrow provides a recycle (tuned) status.

f. Launcher/Rack Lock Status - When the weapon stations are loaded, the lock/unlock status for the launchers and racks are monitored. When an unlock monitor exists during ground operation, a lock command is sent to the encoder-decoder to lock the launcher/rack. Launcher lock status is sent to the MC system for station status display. When a store is sensed and the weapon code for that station is set to either no store, or a spare code, the armament computer sends the launcher/rack lock command to that station. The armament computer updates the rack lock/unlock status at the times listed below:

(1) power up BIT

(2) gear up

(3) periodic BIT

(4) after trigger signals or weapon release signals and prior to fire signals

(5) gear down

(6) aircraft master mode change

17. **Weapon Select Inventory Logic.** When a weapon is selected, the stores inventory logic in the armament computer provides the functions listed:

a. priority station select

b. step option

18. Priority Station Select. At power up or when a weapon select is received, the inventory selects the first weapon station in the priority release sequence for the selected weapon type. The priority release sequence is a programmed logic sequence for weapon delivery. The release sequence is shown in the Priority Weapon Station Release Sequence table in WP015 00. The table shows the sequence that weapon stations are selected for the weapon types.

19. The armament computer keeps the last selected priority station for each weapon type. If a weapon is reselected, the stored priority station is sent to the MC system for display on the DDI.

20. After the priority weapon is launched, failed, hung, or jettisoned, the next available station in the launch sequence is selected.

21. The AIM-120 AMRAAM (AFTER AFC 253 OR 292), AIM-7 sparrow and AIM-9 sidewinder priority stations can be stepped to the next each time the A/A weapon select switch on the aircraft controller grip assembly is pressed. When more than one weapon station has the same A/G selected weapon loaded, the step option is sent to the MC system for display on the DDI.

22. Step Option. When the step option is received from the armament computer, the MC system enables STEP to be displayed by the DDI pushbutton switch. When pressed, the pushbutton switch signal goes to the MC system to be sent to the armament computer. When the armament computer receives the step signal, the priority station for the A/G weapon is stepped one station.

23. **Inventory Status Monitor.** The inventory status data monitored during system initialization is stored in the armament computer memory. This data is sent by way of the avionic mux bus to the MC system. The mux data sent to the MC system is listed below:

a. gun data

b. rack ident

c. rack lock status

d. launcher/VER lock status

e. station/weapon status

f. station degrade

g. roll rate limiting required/roll rate limit valid

h. weapon count (stations 1 - 9)

i. current weapon count

j. weapon code (stations 1 - 9)

k. load fault

l. weapon fuze incompatible

24. Gun Data. The inventory monitor function for the gun is round limit/last round and rounds remaining. These two signals control the burst limit when the gun is fired and provides the round remaining count displayed on the displays.

25. XXX is displayed when no rounds remain. 000 is displayed if the gun encoder-decoder does not power up. Gun encoder-decoder BIT status of FAIL or DEGD (degraded) is displayed under the rounds remaining legend. No other indication of gun encoder-decoder status is displayed.

26. Rack Ident. The rack ident function shows what launcher is loaded on weapon stations 2, 3, 5, 7, and 8. This signal is Aircraft Bomb Ejector Rack BRU-32, Aircraft Bomb Ejector Rack BRU-33 Aircraft Bomb Ejector Rack BRU-41, Multiple Ejector Rack (MER), or Improved Triple Ejector Rack BRU-42.

27. Rack Lock Status. Rack lock/unlock monitor status is sent to the MC for weapon stations 2, 3, 5, 7, and 8. This signal monitors the status of the BRU-32 and is sent to the MC for display.

28. Launcher/VER Lock Status. The lock/unlock monitor status of launchers and BRU-33 are sent to the MC for display as listed:

a. Aircraft Guided Missile Launcher LAU-115/A (stations 2 and 8; aircraft AFTER AFC 253 OR 292, stations 3 and 7).

b. Aircraft Guided Missile Launcher LAU-116( ) (stations 4 and 6).

c. BRU-33 (station 2, 3, 5, 7, and 8).

29. Station/Weapon Status. The station/weapon status monitors the weapon status, station status and hung/gone status. The station/weapon status is updated after each weapon release, selective jettison release or emergency jettison release. The station/weapon status message is sent to the MC system to be displayed on the stores display.

30. Station Degrade. BIT provides the degrade status of the encoder-decoders. Degrade indicates that the weapon station failed part of BIT, but has the ability to release the weapon on that station.

31. Roll Rate Limiting Required/Roll Rate Limit Valid. The armament computer sets roll rate limit (true). When the stores ident for stations 2, 3, 7, or 8 is an air to ground weapon or external fuel tank and the station status is not gone, off, or no decoder. Roll Rate limit is also set if there is a load fault except fuzing incompatibility. The armament computer also sets Roll Rate Limit Valid if the station status is not hung or failed. If Roll Rate Limit Valid is not set (true) a caution is sent to the DDI.

32. Weapon Count (Stations 1-9). The inventory counts the number of weapons on each weapon station and provides the station count to the MC system for display. When a BRU-41/MER or BRU-42 is loaded on a weapon station, the weapon count for that station is set to six. Each weapon release from the weapon station will decrease the weapon count by one. BRU-42s must be manually decremented to get an accurate weapon count.

33. Current Weapon Count. When a weapon is selected, the inventory provides the number of the selected weapons that are loaded. When a weapon is hung, failed or off, the weapon is not counted. AIM-7 sparrows that are not tuned are not counted.

34. Weapon Code (Stations 1-9). The inventory provides a weapon code for each weapon station with stores loaded. The weapon code identifies the store on the weapon station.

35. Load Fault. Load fault is sent to the MC system when the store ident and ARMAMENT switch code on the weapon insertion panel are not the same store or a BRU-33 store aboard outboard with no store aboard inboard exists.

36. Weapon/Fuze Incompatible. When a FUZE switch code on the weapon insertion panel is not compatible with the weapon, the weapon/fuze incompatible signal is sent to the MC system.

37. **MISSION COMPUTER SYSTEM INTERFACE.** The MC system provides the inventory displays and pushbutton switch functions on the stores display.

38. The MC system provides the interface with the flight control system when roll rate limiting is required. The roll rate limiting required/roll rate limit valid signal provides this function.

39. When a load fault exists, the MC system displays an advisory. The display is LOAD with an X superimposed.

40. When a fuze fault exists, the MC system disables the fuze select option on the program of the stores display.

41. LOAD is displayed next to pushbutton 12 when a BRU-41/MER or BRU-42 is on the priority station. Decrease rack count is set when LOAD pushbutton switch is pressed. Count for station selected decreases by one each time the LOAD pushbutton is pressed.

42. **DISPLAYS.** Inventory displays are provided on the left/right DDI and HUD. The mission computer system controls the displays using the SMS inventory data.

43. The stores display wing form shows the station weapon code acronym and station weapon count for the nine weapon stations. Below the weapon acronym, the station/weapon status is displayed. Tables 1 and 2 lists the station/weapon status that can be displayed for stores.

44. During A/A weapon select, the current weapon count of AIM-120 (AFTER AFC 253 OR 292), AIM-7 and AIM-9 are provided on the HUD and radar displays. The rounds remaining is displayed for A/A gun select.

45. When A/G aircraft mode is selected, the A/G weapon select pushbutton switch options are displayed. A pushbutton switch acronym for each type of A/G weapon loaded is displayed. A/G weapons display RDY under the acronym of the selected weapon type when the weapon is available for release.

46. LOAD is displayed next to stores display pushbutton switch 12 when a BRU-41/MER or BRU-42 is loaded on the priority station.

47. When a BRU-33, BRU-41/MER, or BRU-42 is loaded, a diamond will be displayed between weapon count and weapon type on the wingform.

TABLE 1. STATION/WEAPON STATUS DISPLAYS. 4

STORE	STATION/WEAPON STATUS DISPLAY																		
	FAIL	DEGD	HUNG	STBY	RDY	SEL	L SEL	R SEL	F SEL	~~X~~	~~X~~	LKD	UNLKD	H+LKD	H+ULK	TSN	H+TSN	SDEGD	WDEGD
FUELTANK	X	X	X									X	X						
AIM-9 (WINGTIP)	X	X	X			X													
AIM-9 (PYLON)	X	X	X				X	X					X						
AIM-7F (FUSELAGE)	X	X	X						X	X		X	X						
AIM-7F (PYLON)	X	X				X				X		X	X	X	X				
1 2 AIM-7M (FUSELAGE)	X	X	X						X		X	X	X	X	X				
1 2 AIM-7M (PYLON)	X	X				X					X	X	X	X	X				
1 HARPOON	X	X			X							X	X	X	X				
MAVERICK	X	X			X								X		X				
BOMBS	X	X										X	X	X	X				
HARM	X	X		X	X								X		X			X	X
ROCKET	X	X												X	X				
GUN	X	X																	
SHRIKE	X		X									X	X	X	X			X	
3 SLAM	X	X			X							X	X	X	X				

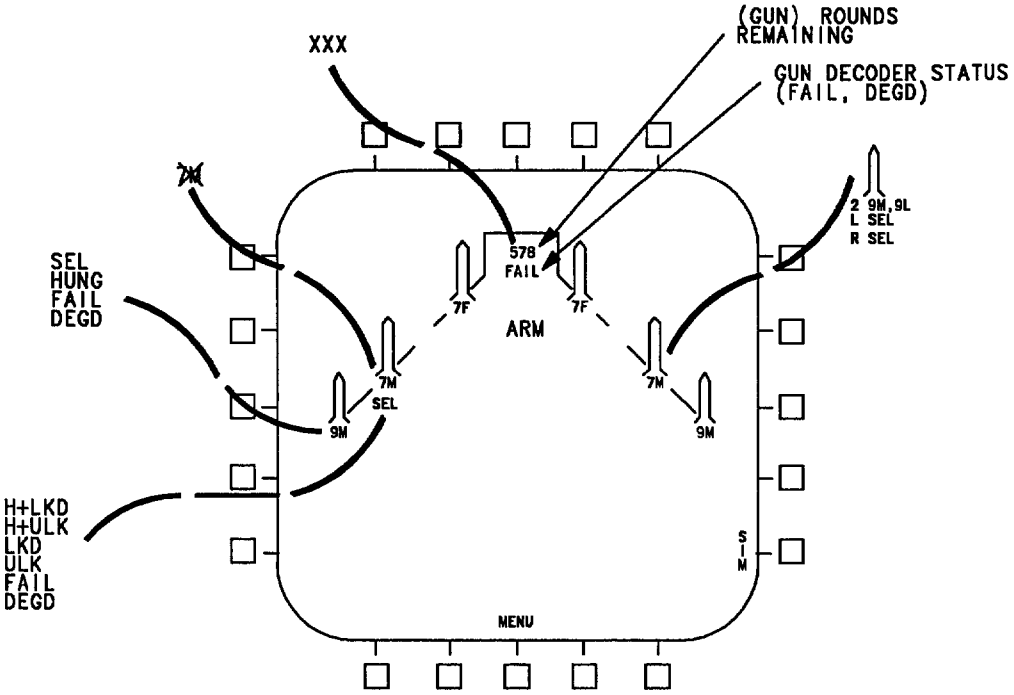
LEGEND

1 162394 AND UP, ALSO 161353 THRU 161987, AFTER F18 AFC 74.

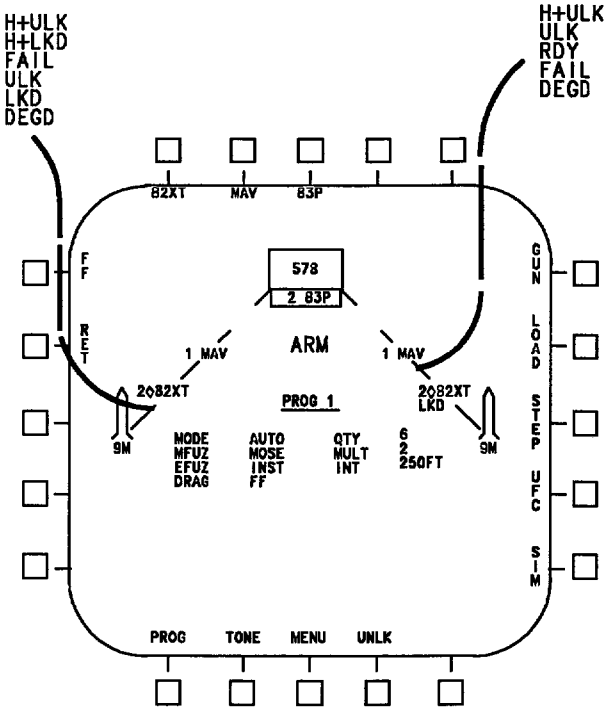
2 161925 THRU 161987 WITH PYLON COMMAND SIGNAL ENCODER-DECODER PN 7959350-007R1 (F18 IAVC 2813) AND FUSELAGE COMMAND SIGNAL ENCODER-DECODER PN 7959450-007R1 (F18 IAVC 2814) - AIM-7M CAN BE LOADED BUT 7F WILL BE DISPLAYED ON THE STORES DISPLAY.

3 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

4 161353 AND UP BEFORE F/A-18 AFC 253 OR AFC 292.



2 A/A INVENTORY DISPLAY (TYPICAL)



2 A/G MAVERICK/BOMBS WEAPON DISPLAY (TYPICAL)

02100101

Figure 1. Stores Inventory Display (Sheet 1)

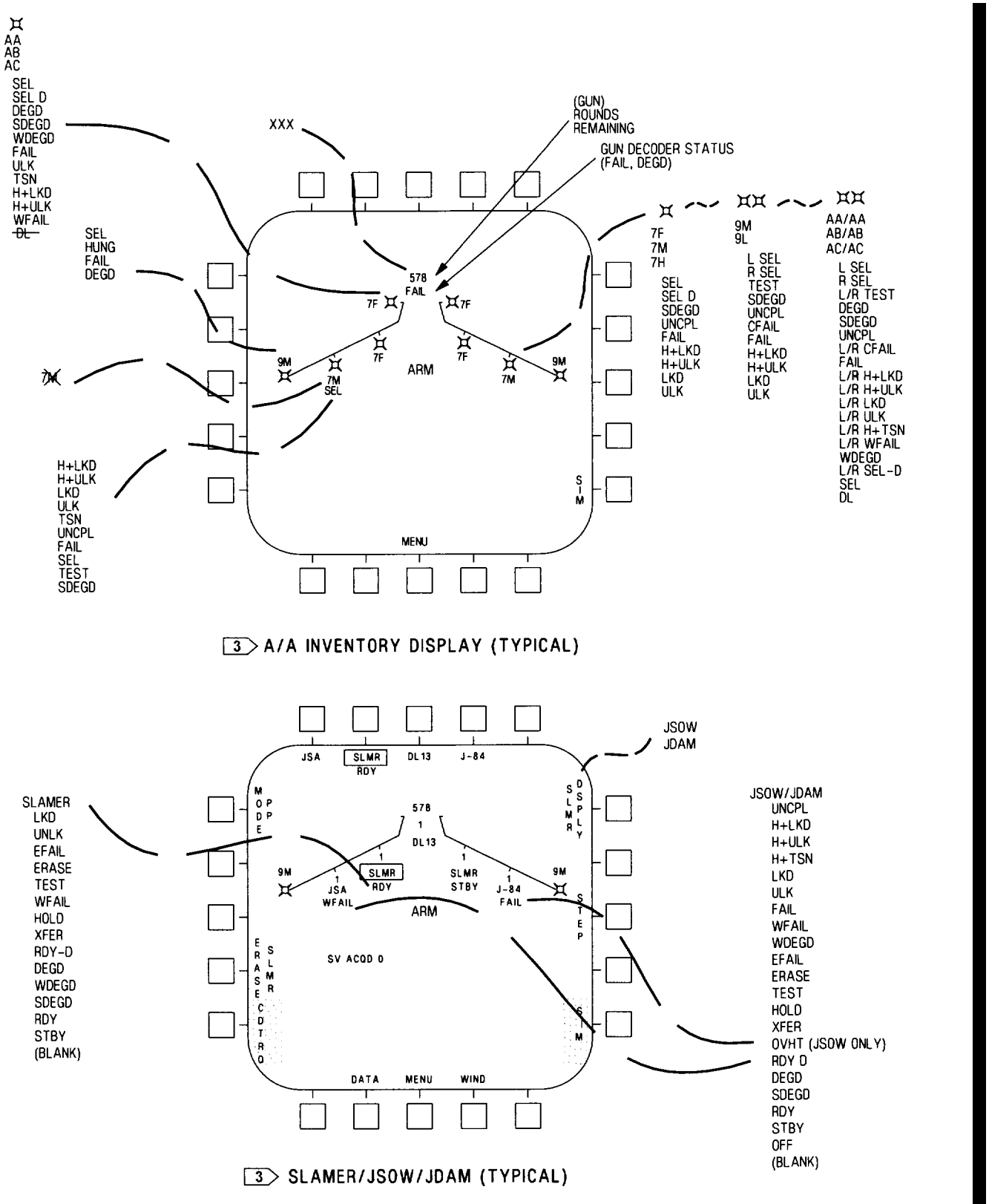
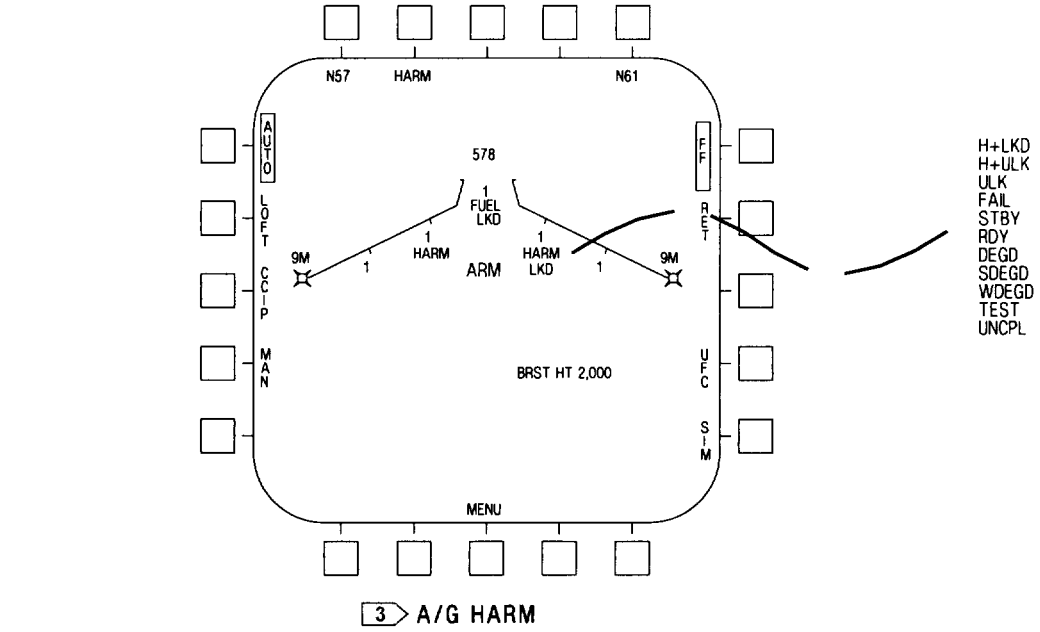
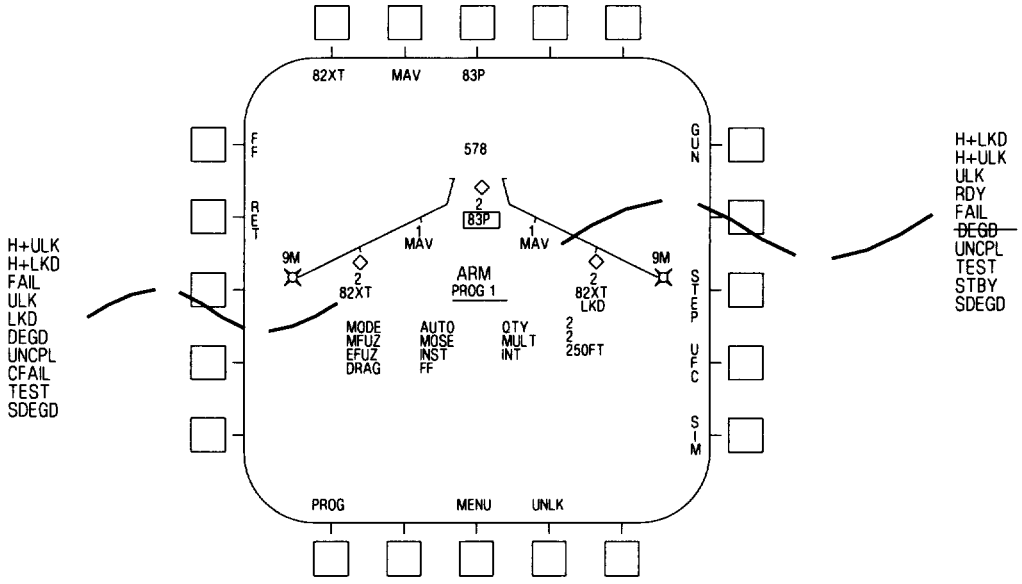


Figure 1. Stores Inventory Display (Sheet 2)



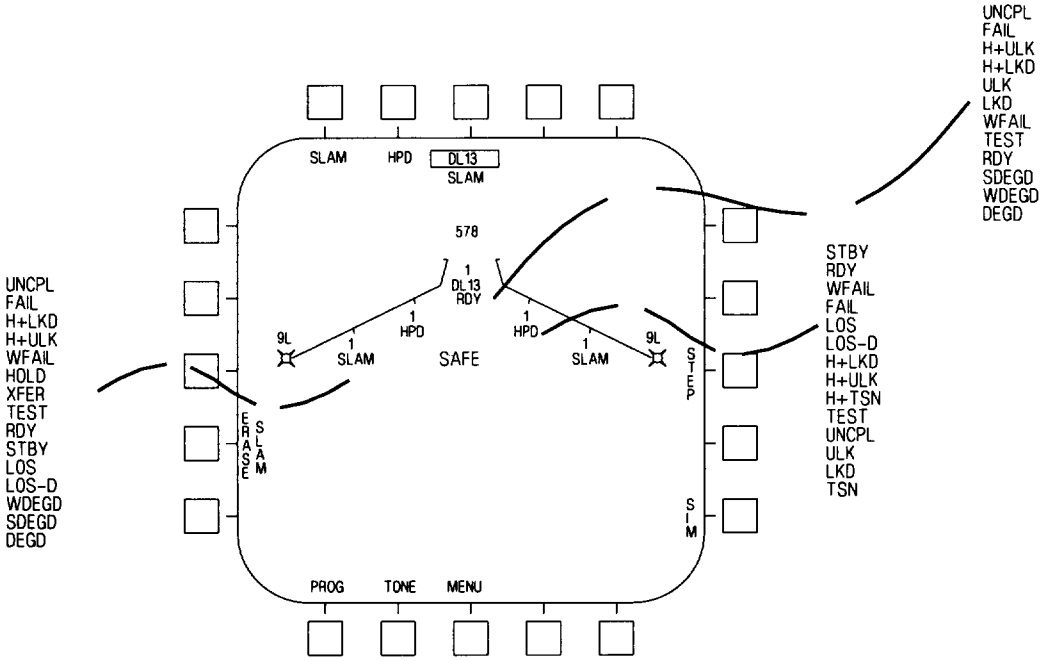
3 A/G HARM



3 A/G MAVERICK/BOMBS
WEAPON DISPLAY (TYPICAL)

02100103

Figure 1. Stores Inventory Display (Sheet 3)



3 A/G SLAM/AWW-13/HARPOON DISPLAY

LEGEND

1. ABBREVIATIONS: SEE WP002 01
2 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V)CONFIG/IDENT 85A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).
3 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

02100104

Figure 1. Stores Inventory Display (Sheet 4)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - STORES INVENTORY SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

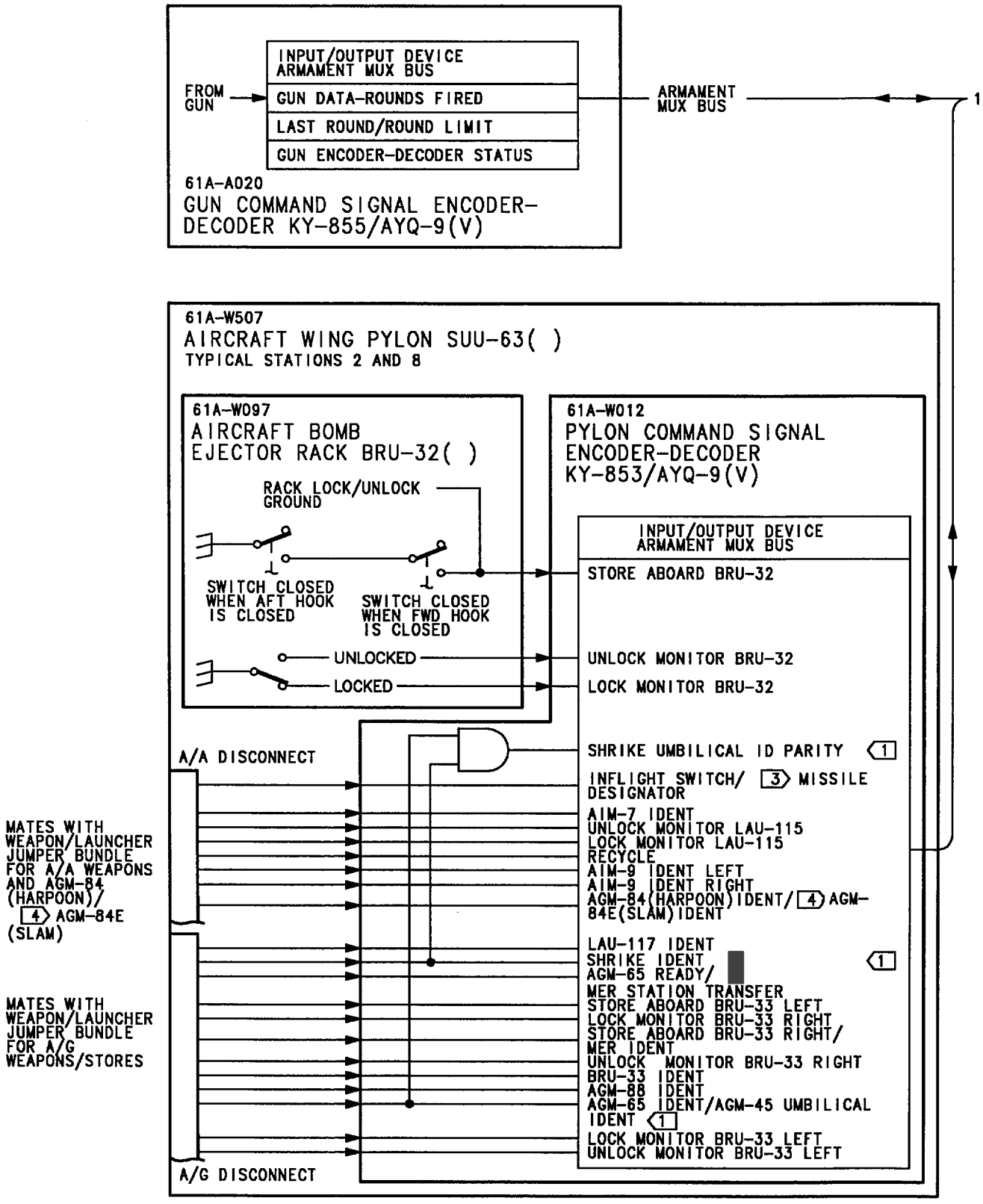
Subject	Page No.
Introduction	1
Stores Inventory Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only

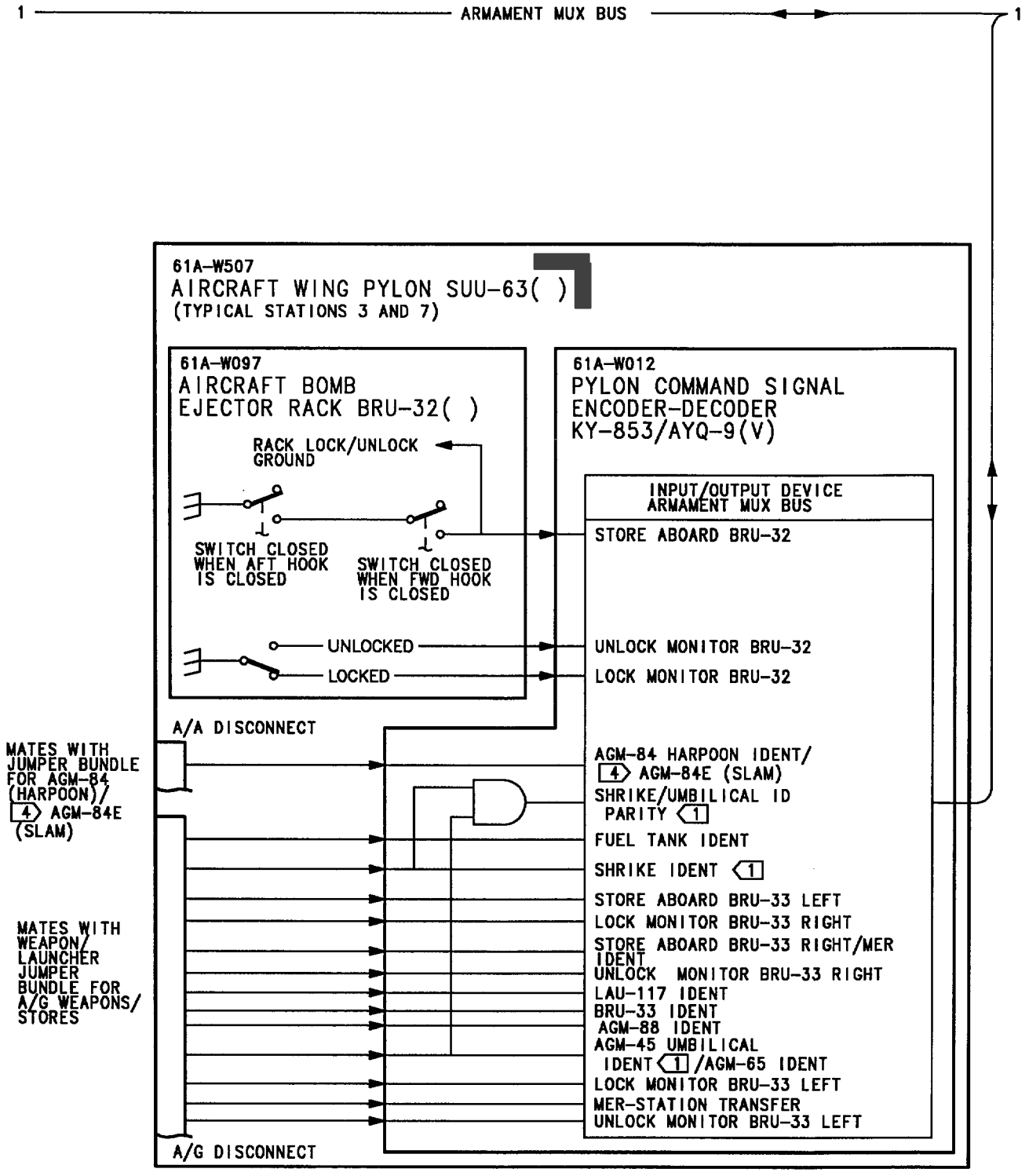
1. INTRODUCTION.

2. The schematic in this work package provides support for the data in WP021 00.



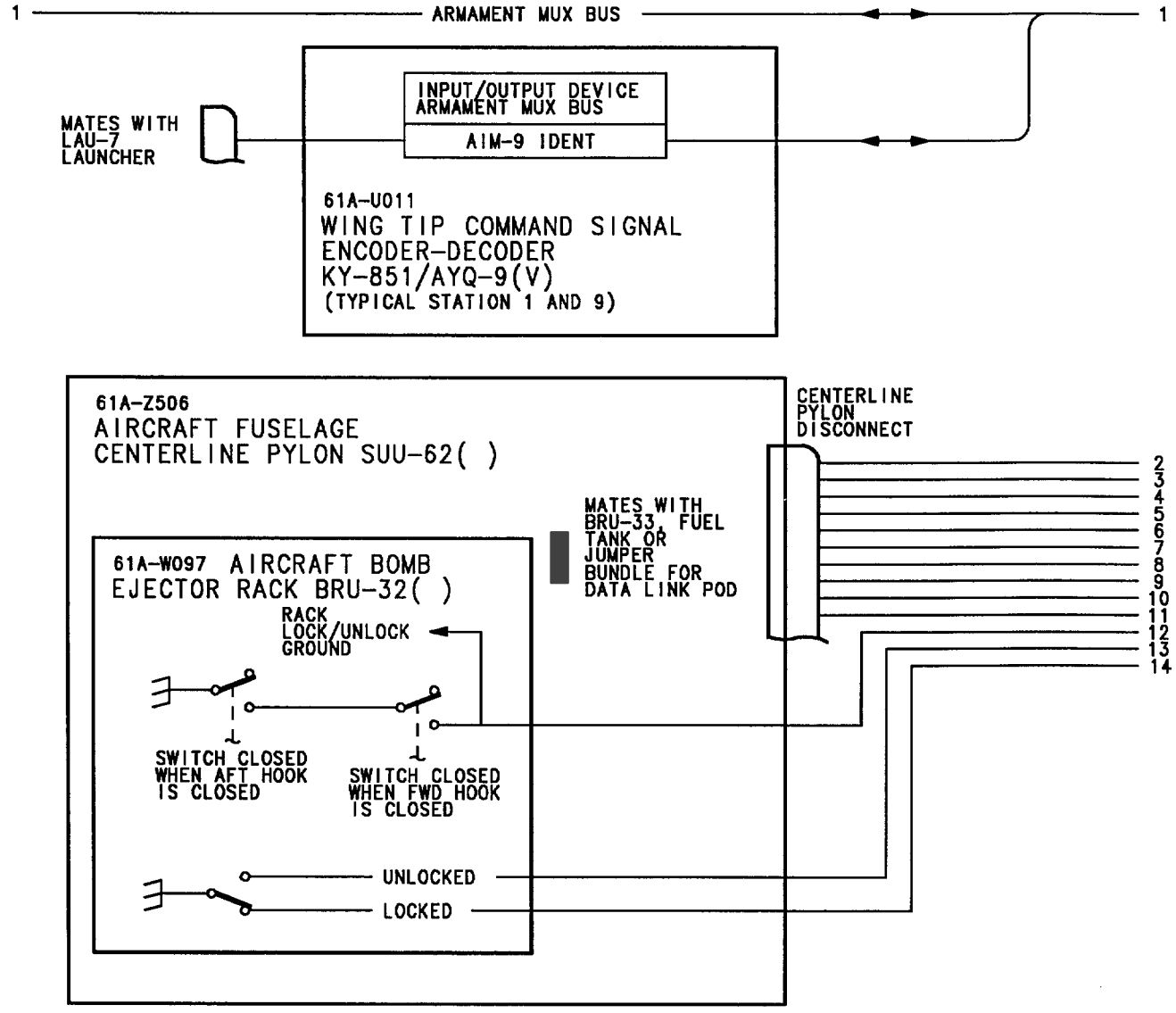
02200101

Figure 1. Stores Inventory Simplified Schematic (Sheet 1)



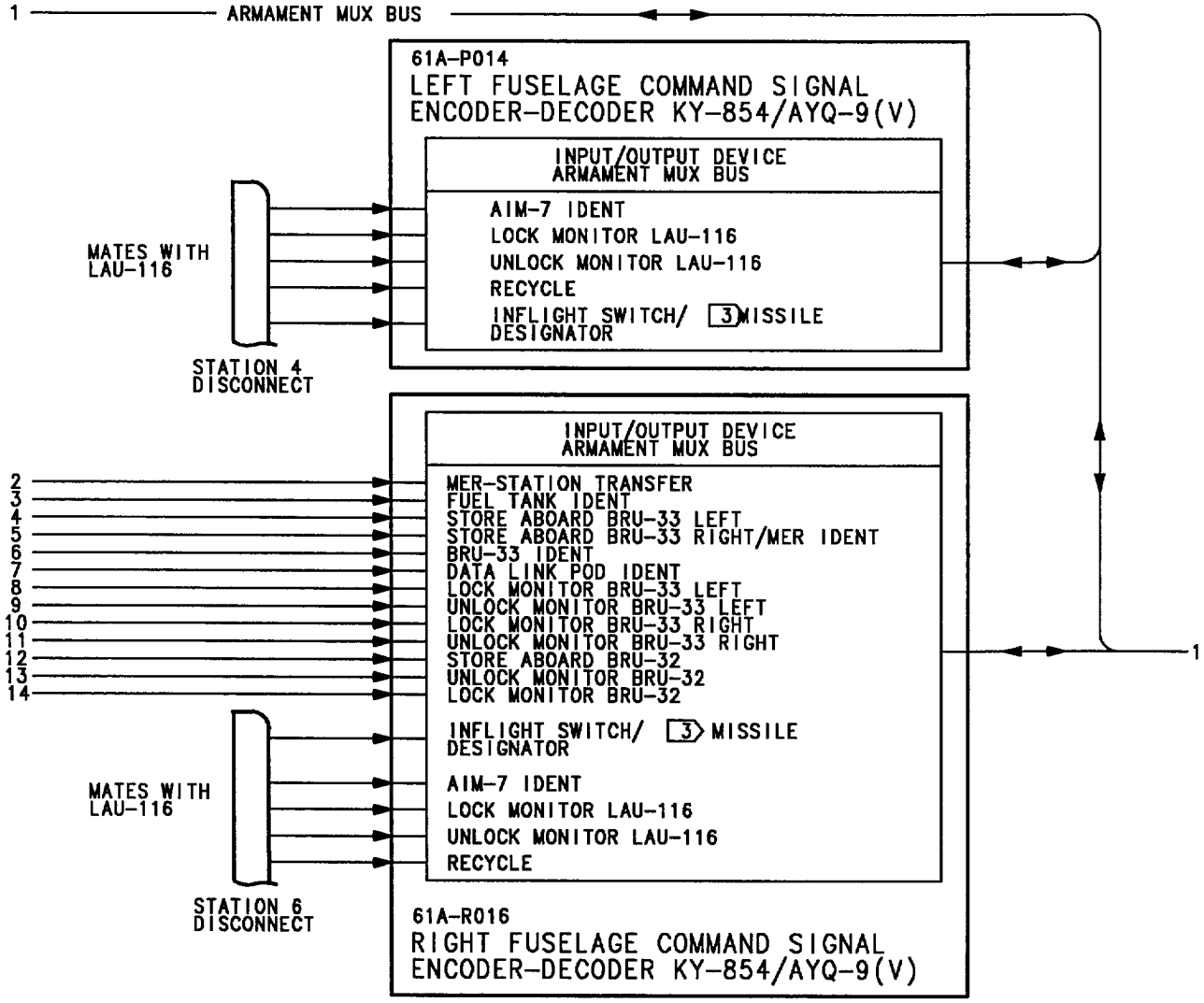
02200102

Figure 1. Stores Inventory Simplified Schematic (Sheet 2)



02200103

Figure 1. Stores Inventory Simplified Schematic (Sheet 3)



02200104

Figure 1. Stores Inventory Simplified Schematic (Sheet 4)

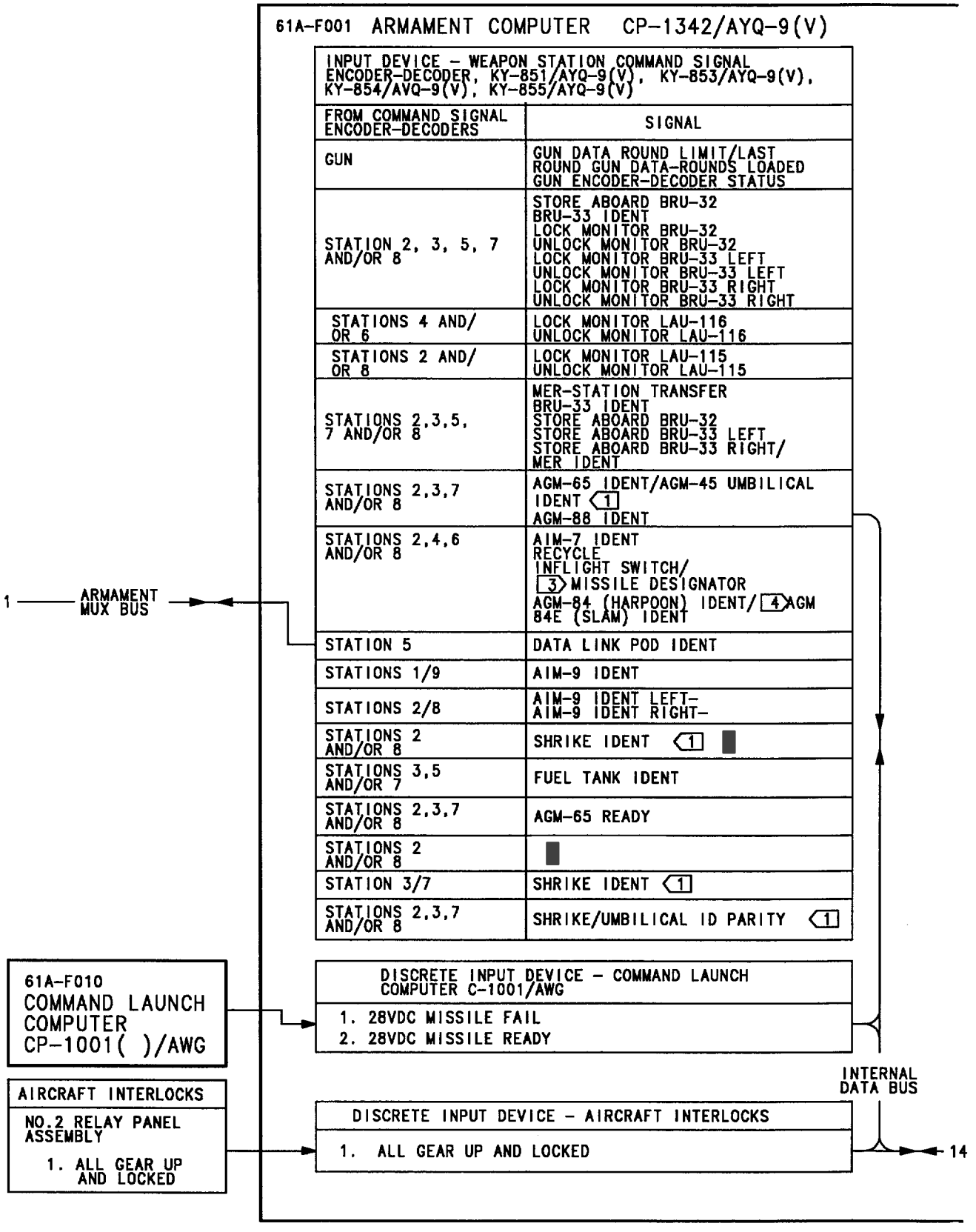
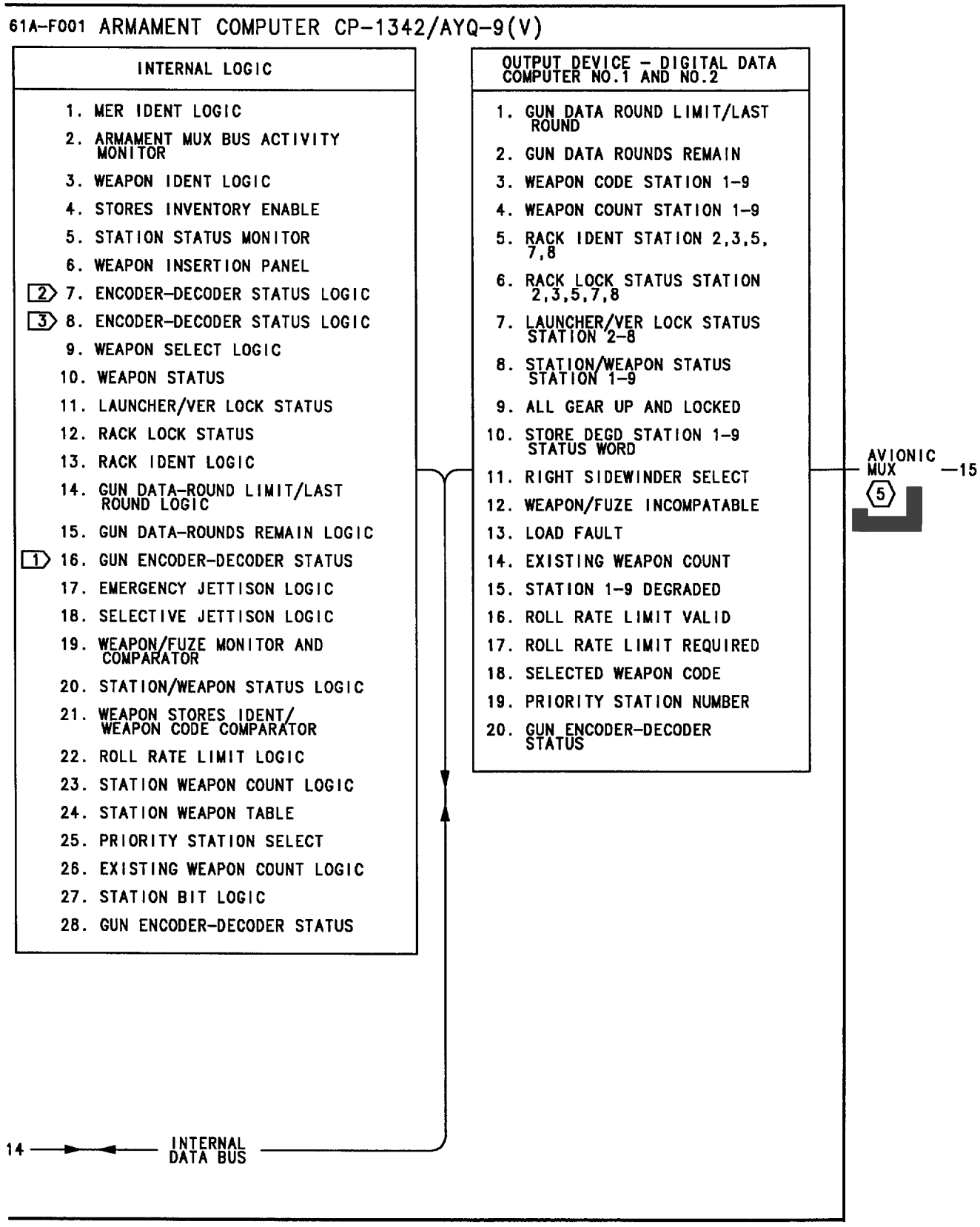


Figure 1. Stores Inventory Simplified Schematic (Sheet 5)



02200106

Figure 1. Stores Inventory Simplified Schematic (Sheet 6)

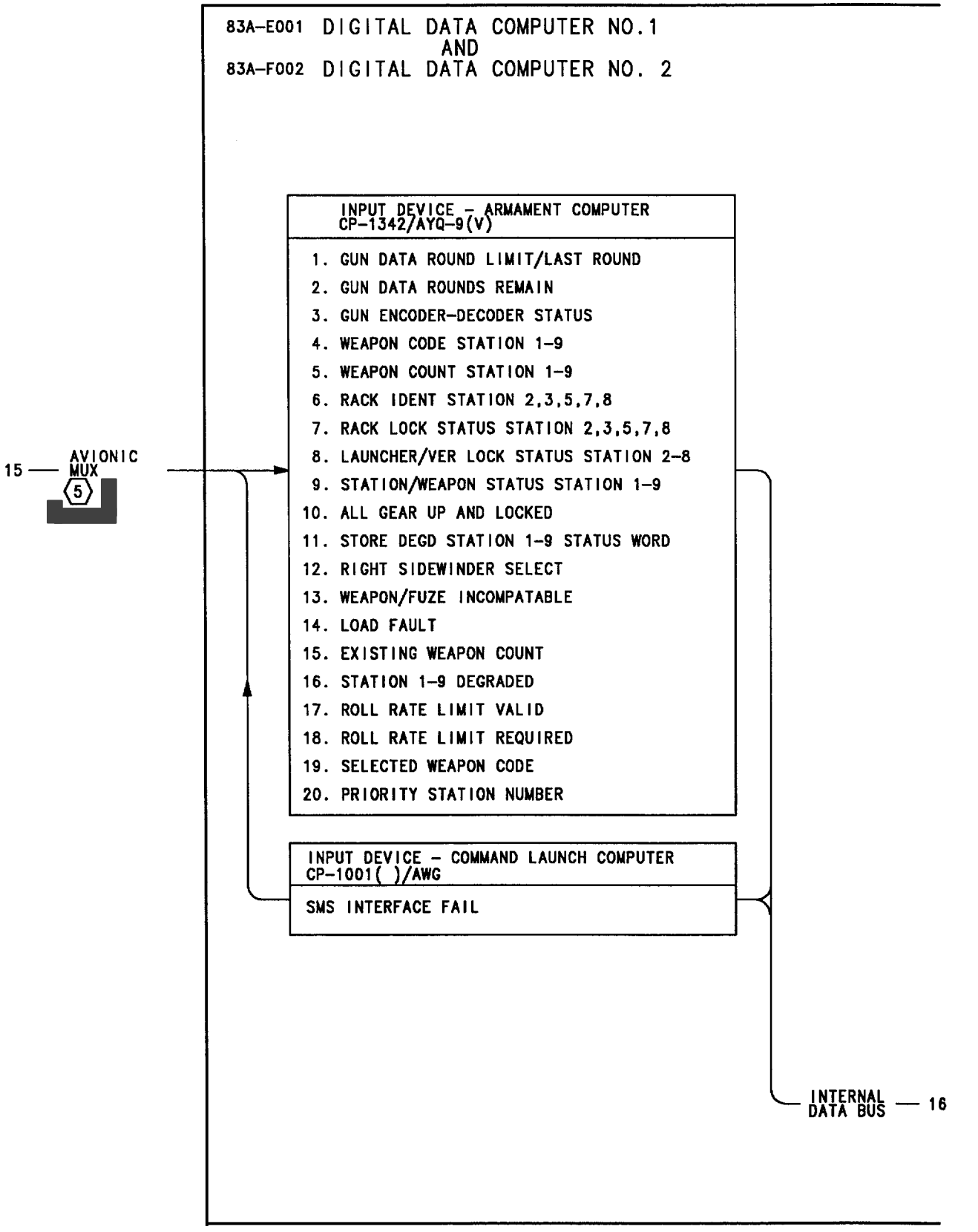
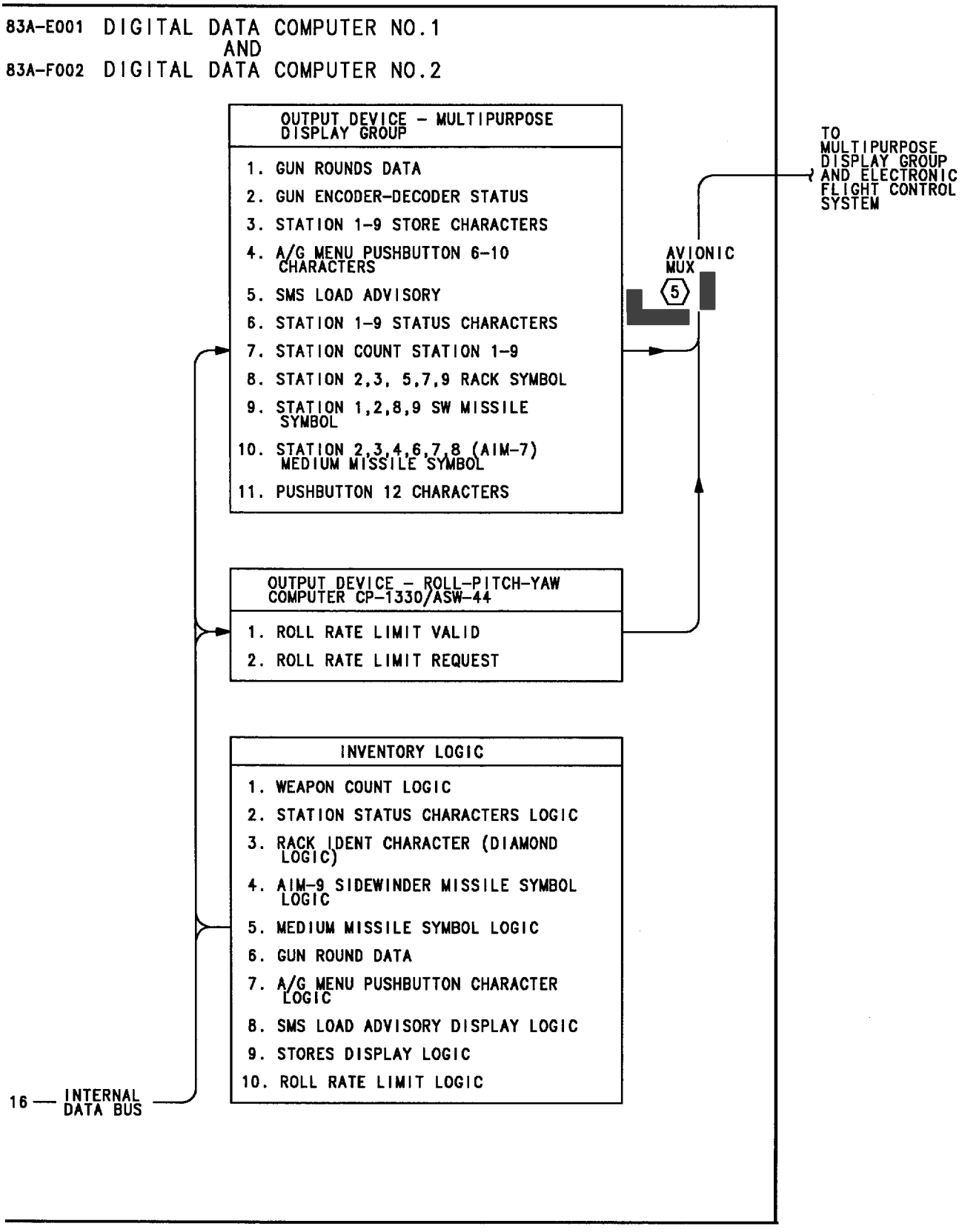


Figure 1. Stores Inventory Simplified Schematic (Sheet 7)



02200108

Figure 1. Stores Inventory Simplified Schematic (Sheet 8)

LEGEND

[1] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT No. 85A AND UP DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).

[2] 161353 THRU 161987 BEFORE F18 AFC 74.

[3] 162394 AND UP, ALSO 161353 THRU 161987 AFTER F18 AFC 74.

[4] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

⟨5⟩ SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500)

Figure 1. Stores Inventory Simplified Schematic (Sheet 9)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - STORES INVENTORY SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

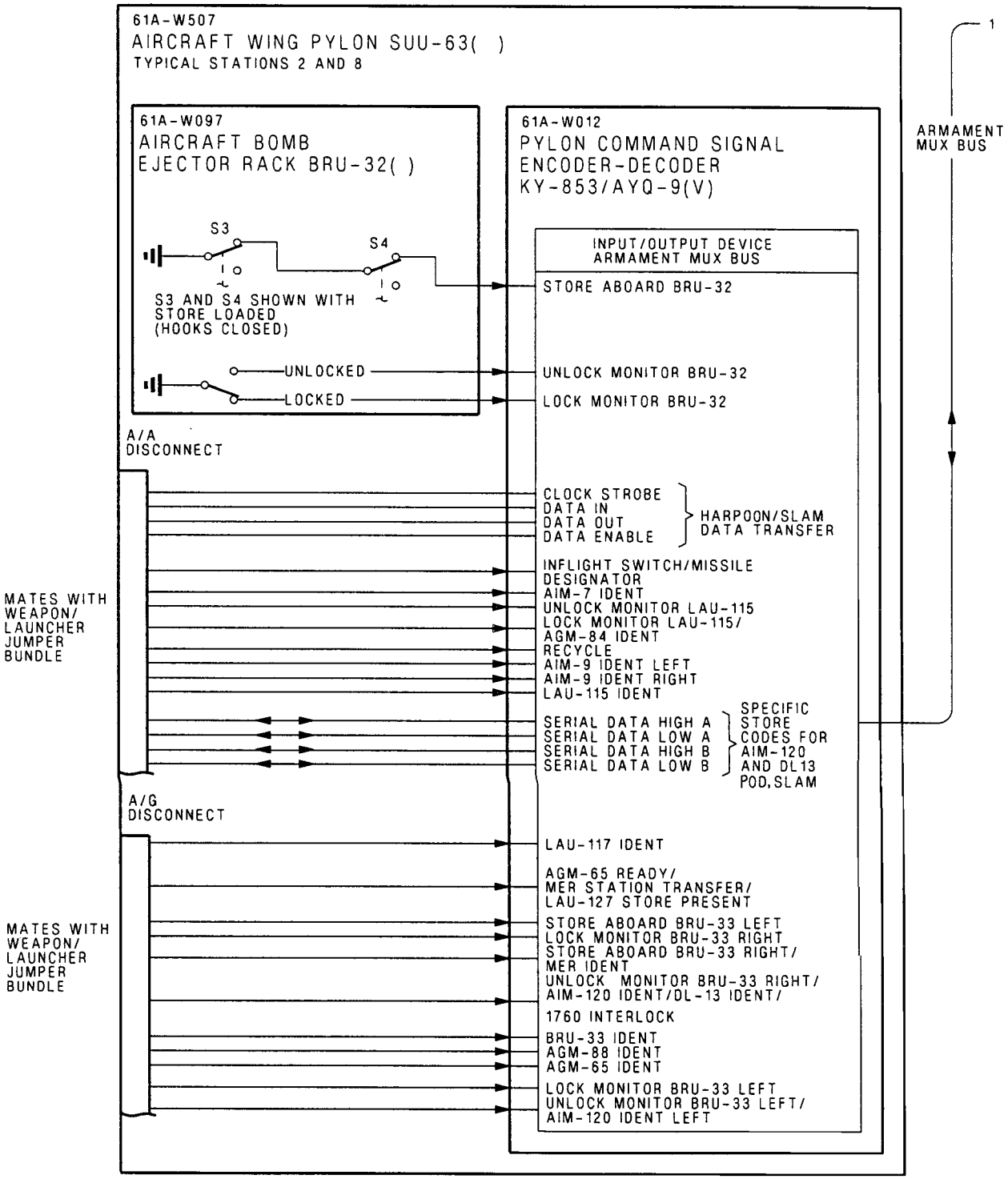
Subject	Page No.
Introduction	1
Stores Inventory /Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

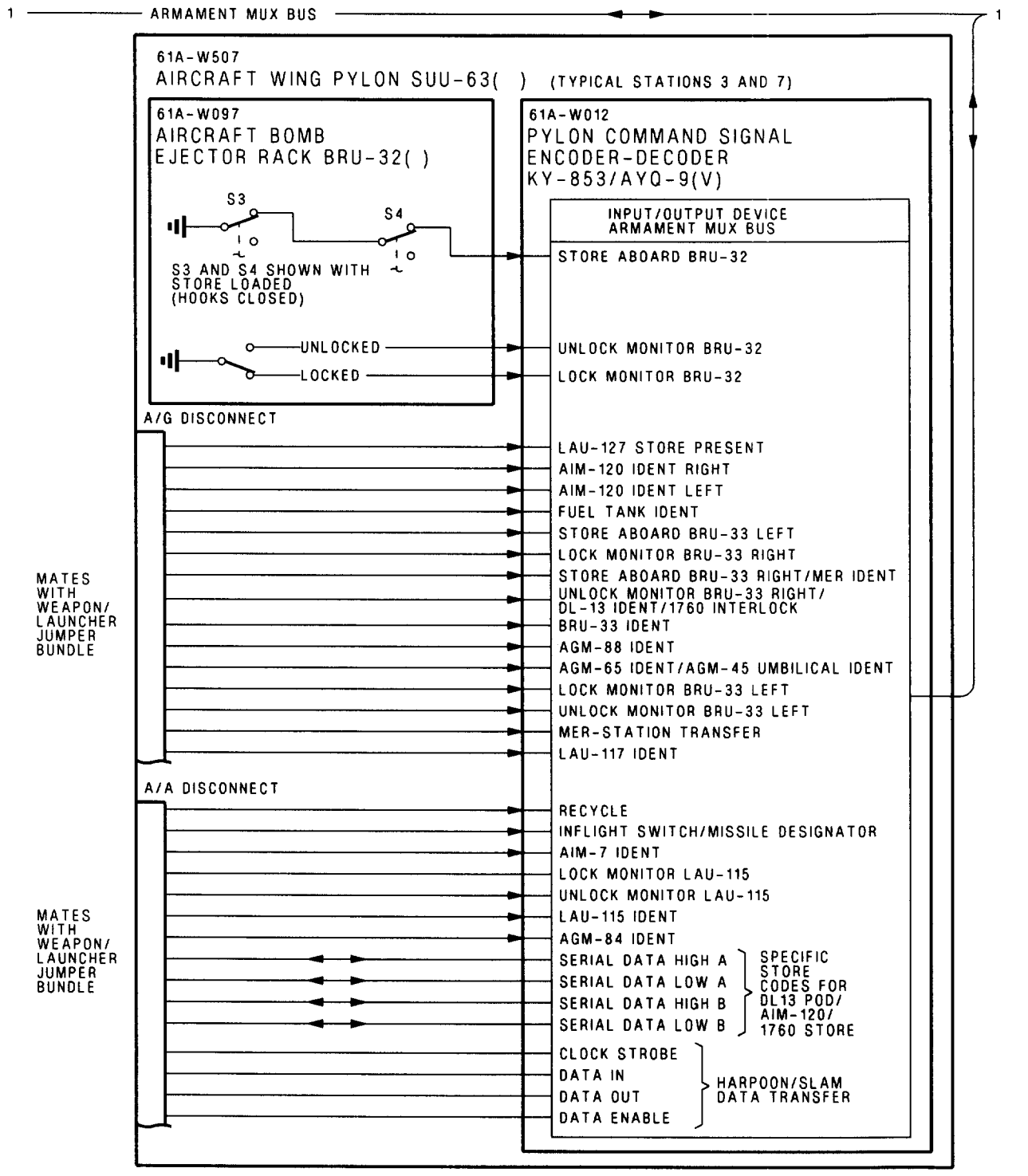
1. INTRODUCTION.

2. The schematic in this work package provides support for the data in WP021 00.



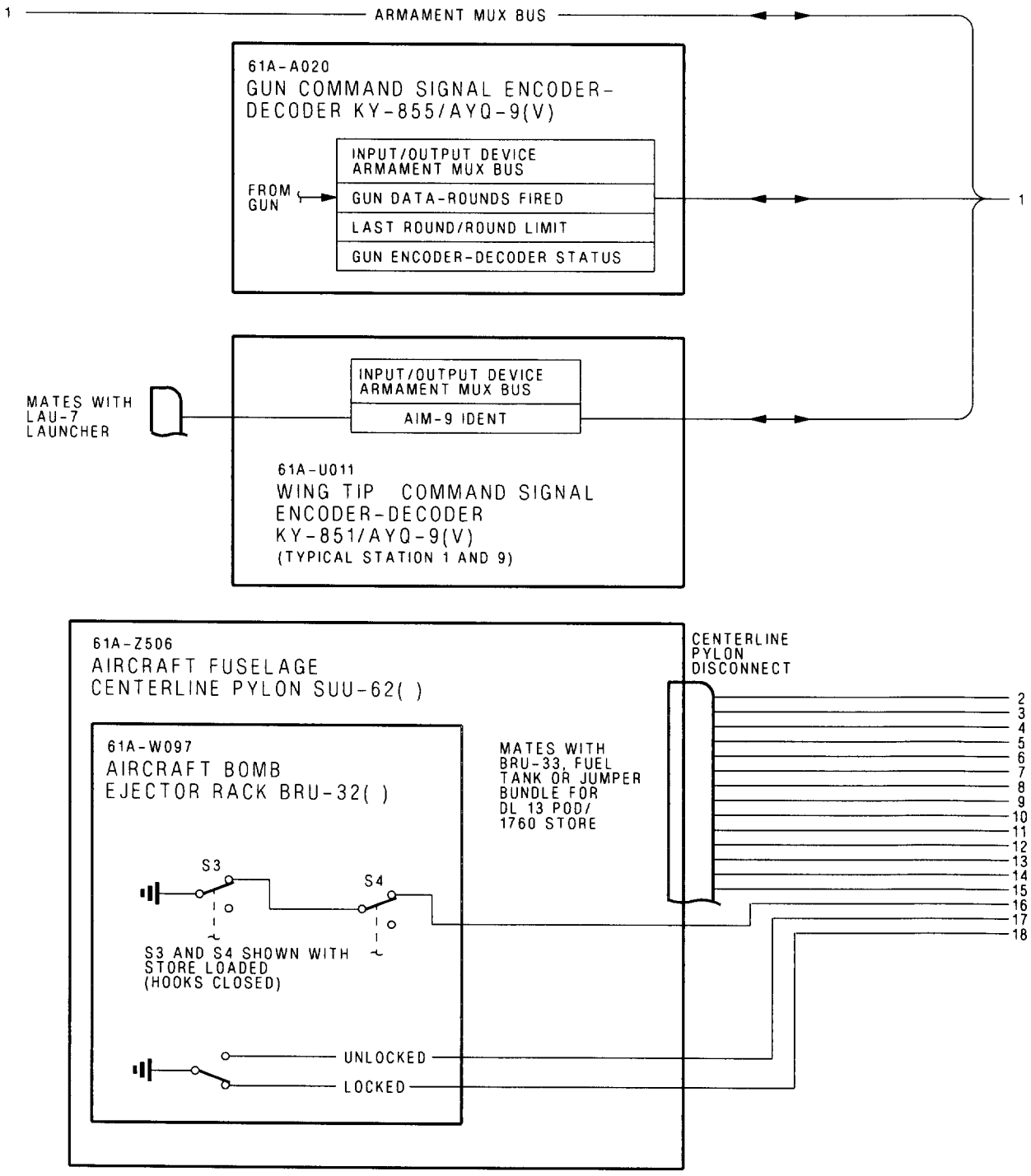
22010101

Figure 1. Stores Inventory Simplified Schematic (Sheet 1)



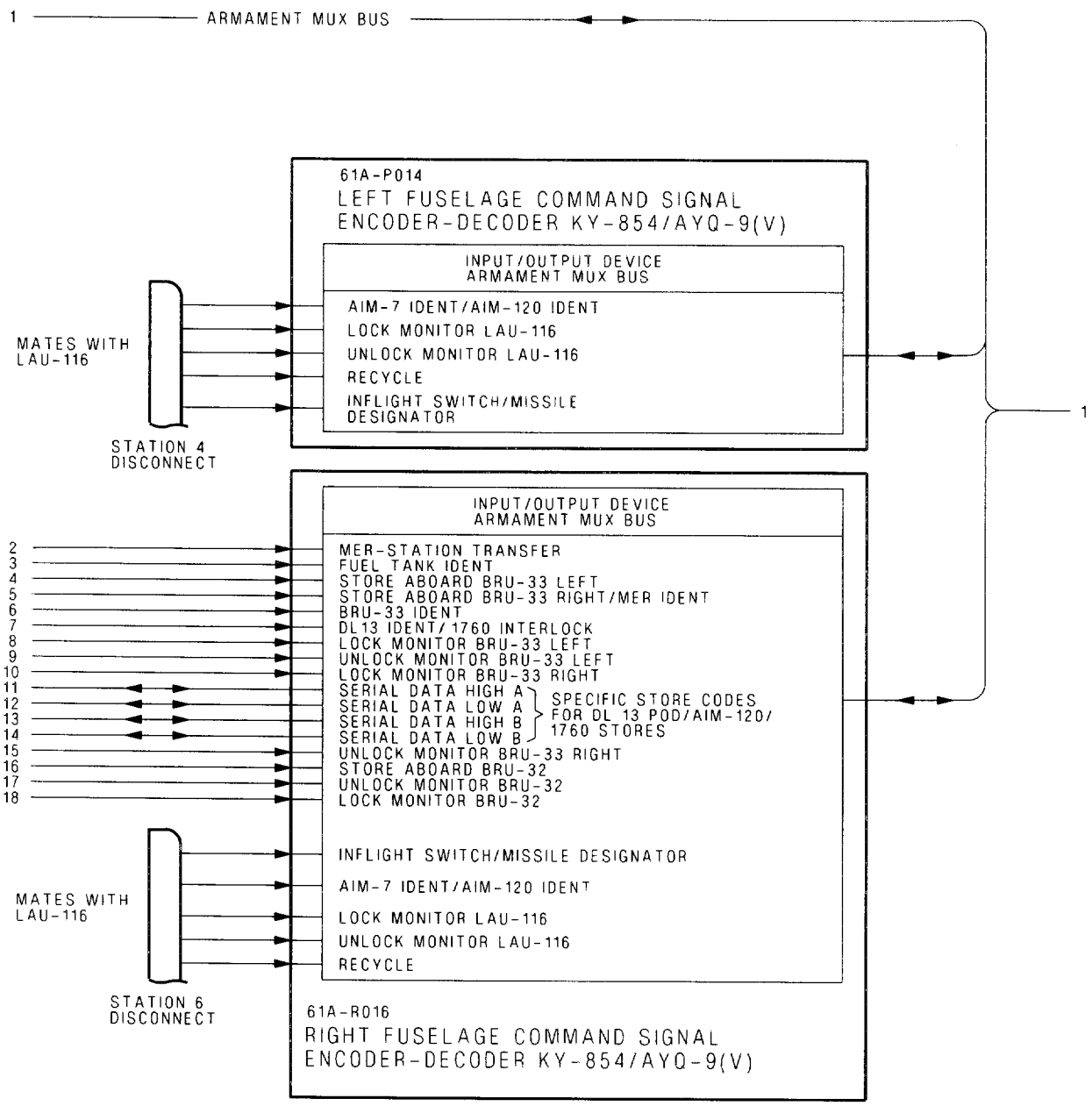
22010102

Figure 1. Stores Inventory Simplified Schematic (Sheet 2)



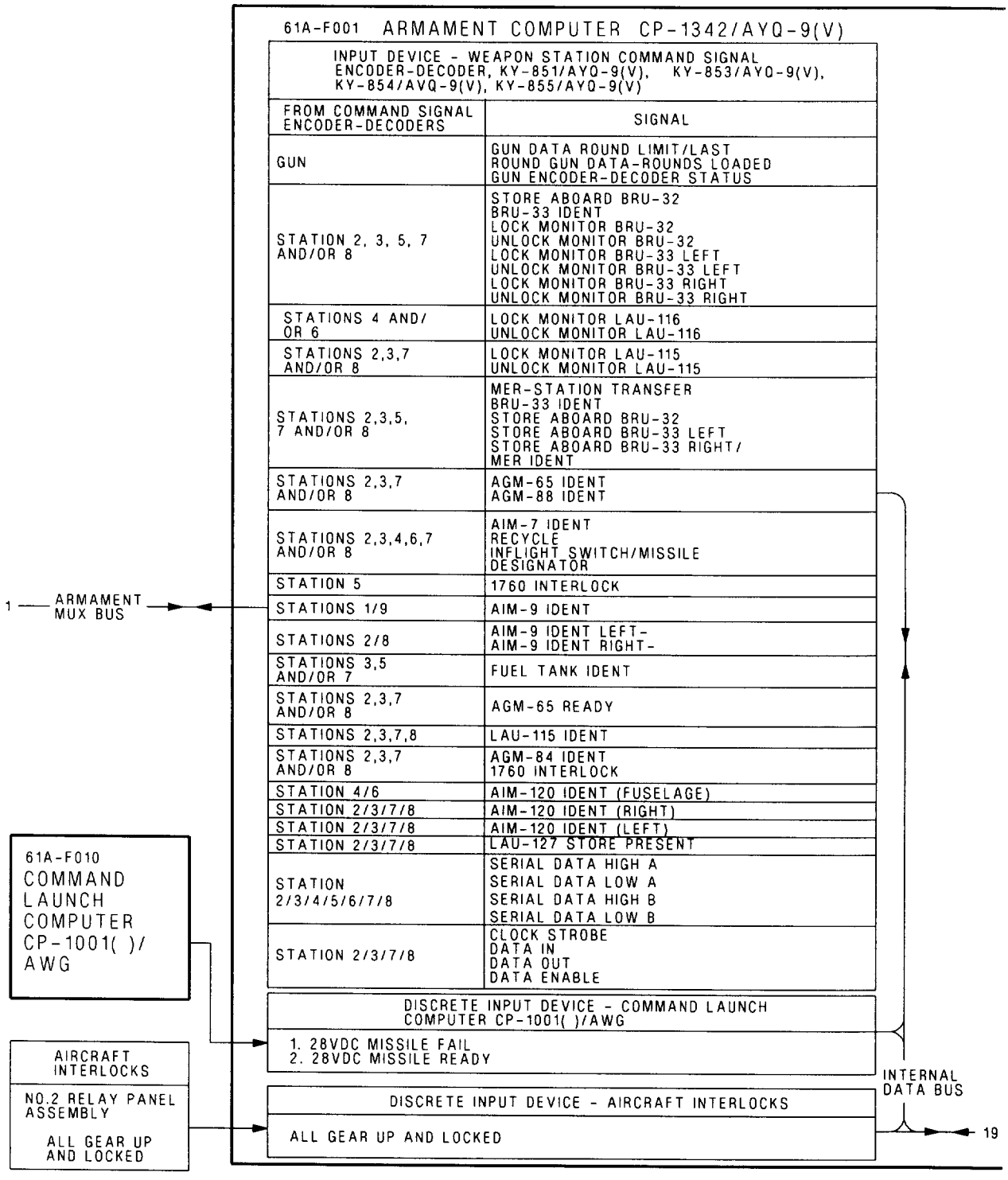
22010103

Figure 1. Stores Inventory Simplified Schematic (Sheet 3)



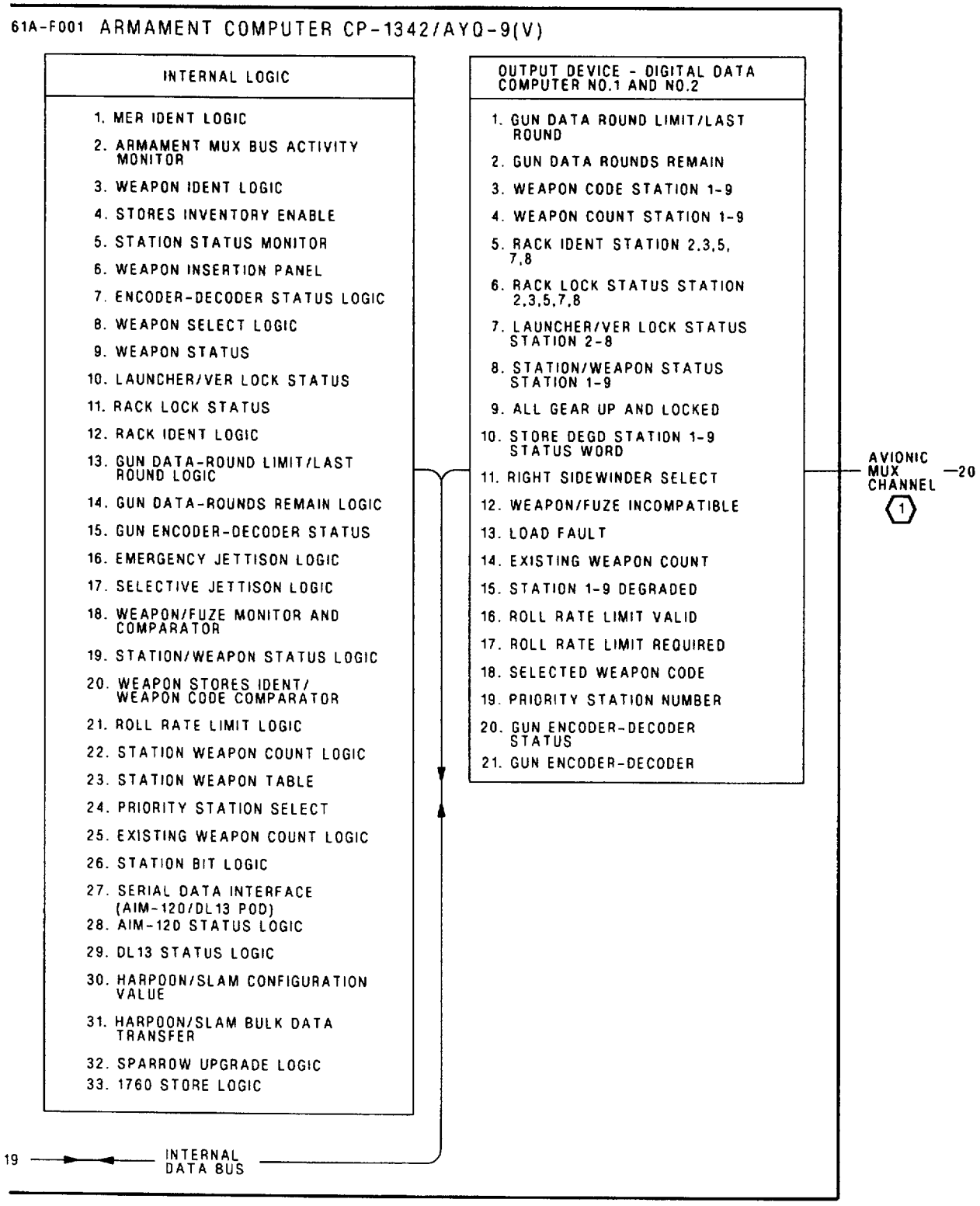
22010104

Figure 1. Stores Inventory Simplified Schematic (Sheet 4)



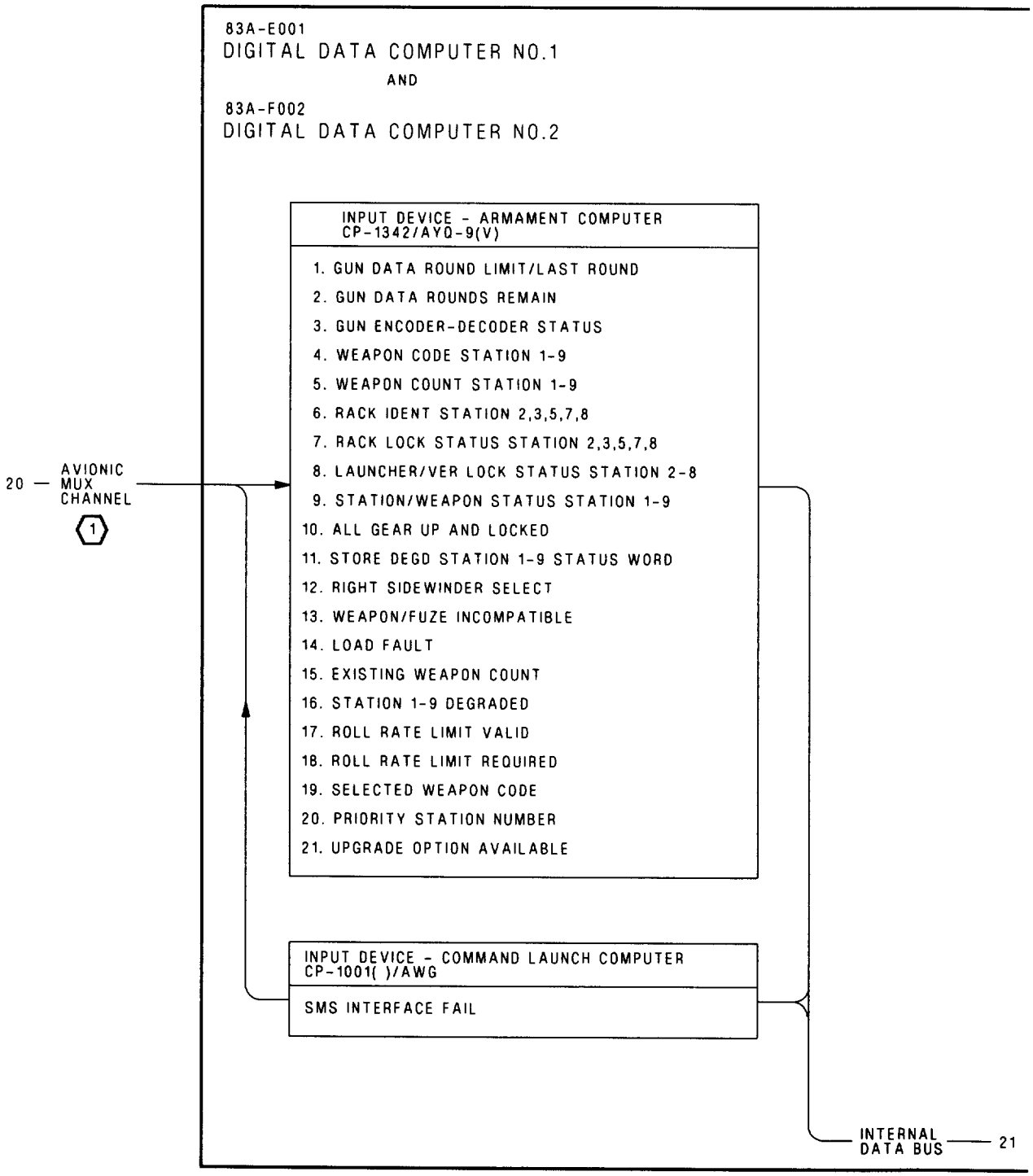
22010105

Figure 1. Stores Inventory Simplified Schematic (Sheet 5)



22010106

Figure 1. Stores Inventory Simplified Schematic (Sheet 6)



22010107

Figure 1. Stores Inventory Simplified Schematic (Sheet 7)

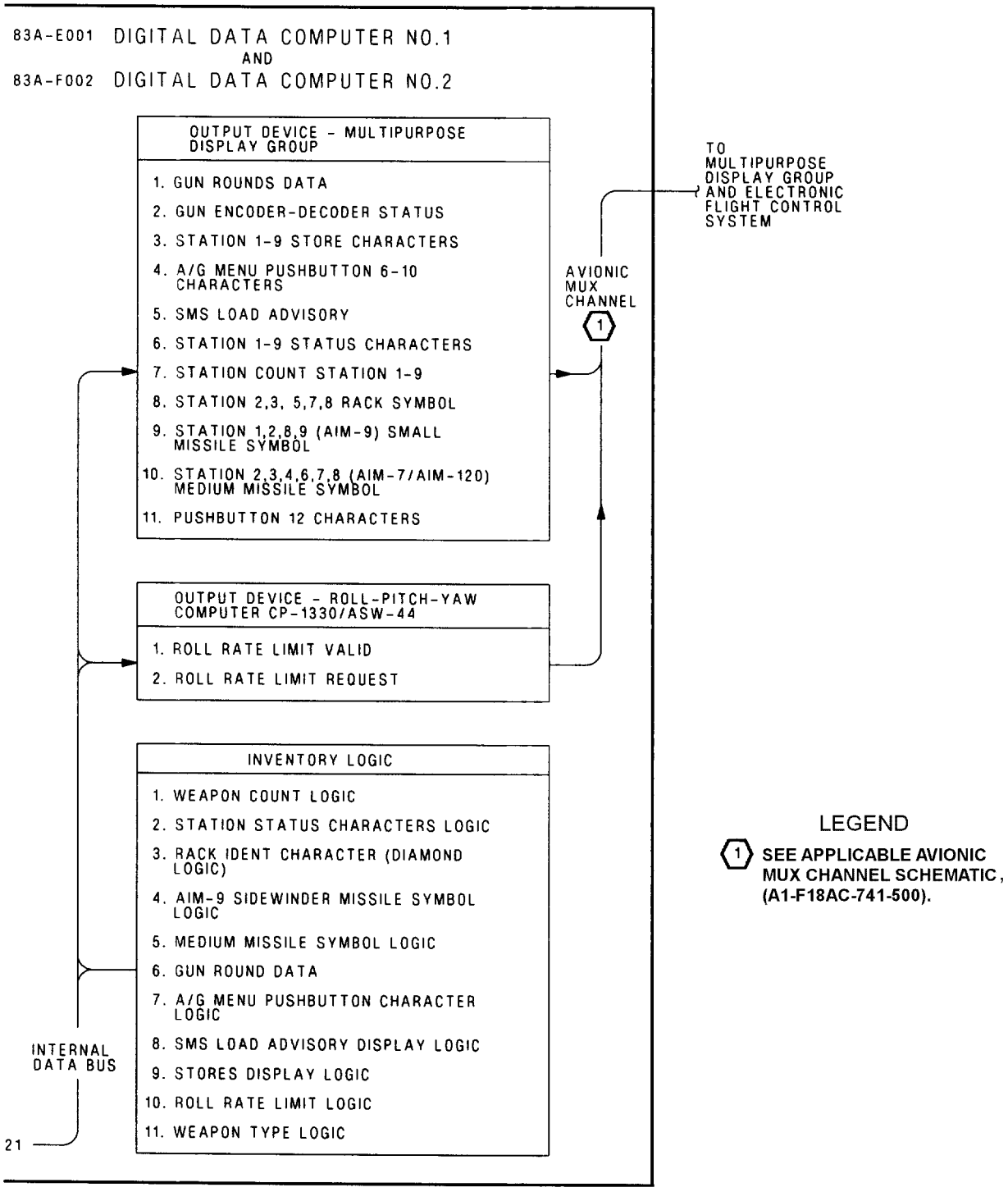


Figure 1. Stores Inventory Simplified Schematic (Sheet 8)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - WEAPON SELECT

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management Systems Locator WP014 00
Stores Management System Reference Tables WP015 00
Stores Management System Weapon Select Simplified Schematic WP024 00
Weapon Control System A1-F18AC-740-500
Weapon Select Schematic WP016 00

Alphabetical Index

Subject	Page No.
Armament Computer Select	2
Displays	4
Introduction	1
Mission Computer Select	3
Simulation Mode	3
Weapon Select Displays, Figure 1	5
Weapon Select Operation	2
Weapon Select Switch Logic	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) weapon select operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP024 00 for the weapon select operation simplified schematic. Detailed weapon select operation

schematic is provided in the Weapon Select Schematic (A1-F18AC-740-500, WP016 00).

4. Figure 1 shows displays related to weapon select operation.

5. Refer to WP014 00 for weapon select component locations.

6. WEAPON SELECT OPERATION.

7. The weapon select function enables the selection of air to air (A/A) and air to ground (A/G) weapons that are identified by the stores inventory function.

8. Weapon select operation in this work package is listed below:

a. weapon select switch logic

b. armament computer select

c. mission computer select

d. simulation mode

e. displays

9. **WEAPON SELECT SWITCH LOGIC.** The weapon select switch logic operation is provided as listed:

a. A/A weapon select

b. A/G weapon select

10. **A/A Weapon Select.** The AIM-120 (AFTER AFC 253 OR 292), AIM-7 sparrow, AIM-9 sidewinder and A/A gun mode are selected by the A/A weapon select switch on the aircraft controller grip assembly.

11. The switch is a three position (four position on aircraft AFTER AFC 253 OR 292) momentary switch that returns to center (off) when released. When pressed, the switch enables a select discrete to ground to the Armament Computer CP-1342/AYQ-9(V) to select the weapon type required. Switch select positions are listed below:

Switch Position	Weapon Selected
forward	AIM-7 sparrow
aft	gun A/A mode
center (pressed)	AIM-9 sidewinder
right (AFTER AFC 253 OR 292)	AIM-120 AMRAAM

12. On F/A-18B, A/A weapons may be selected from the rear aircraft controller grip assembly; however A/A aircraft master mode has to be selected. The ground (common) for the rear A/A weapon select switch is interlocked through energized contacts of the A/A mode select relay.

13. The A/A weapon select (ground enable) discrete signals from the A/A weapon select switches are sent to the armament computer. The armament computer uses the select switches for the functions listed:

a. Selects A/A aircraft master mode (if not previously selected).

b. Does internal selected weapon initialization.

c. Sends selected weapon code to MC system.

14. **A/G Weapon Select.** The A/G weapons are selected from the stores display on the left/right Digital Display Indicators (DDI) IP-1317( ). When A/G aircraft master mode is selected, the MC system sends display data to the DDI stores display for the A/G weapon inventory. The weapon acronym appears below the top five pushbutton switches on the stores display.

15. Pressing the pushbutton switch for the displayed acronym selects the weapon type. The switch select is sent to the MC system. The MC system receives the AC pushbutton signal and does the functions listed:

a. Sends display data back to the stores display for station/weapon status and to box the selected weapon pushbutton switch acronym.

b. Sends the selected A/G weapon code to the armament computer to tell the SMS the selected weapon.

c. Does internal selected weapon initialization.

16. **ARMAMENT COMPUTER SELECT.** The armament computer receives select discrete signals from the aircraft controller grip assembly for A/A weapons and the selected A/G weapon code from the MC system for A/G weapon select. The armament computer initializes for the selected weapon and sends the

selected weapon code to the MC system. Internal functions done by the armament computer are listed below:

a. weapon initialization

b. stores inventory

c. A/A and A/G ready status

17. **Weapon Initialization.** When the armament computer receives a weapon select signal weapon initialization is done as listed:

a. Does internal BIT check of circuits/functions for the selected weapon.

b. Does BIT check of weapon station command signal encoder-decoders with the selected weapon loaded.

c. Selects first weapon station with selected weapon loaded in the priority release sequence.

d. Sends latest stores inventory data to the MC system for signal processing and displays.

18. **Stores Inventory.** The stores inventory function identifies the stores loaded on each station. When a weapon is selected, the stores inventory provides the MC system and internal computation circuits of the armament computer with the functions listed below:

a. priority weapon release sequence

b. current weapon count

c. step option

19. Priority Weapon Release Sequence. When a weapon is selected, the inventory function determines the priority release sequence. The release sequence is a programmed sequence for weapon release. Refer to WP015 00 for the priority weapon station release sequence.

20. The priority station selected for release may be overridden. For A/A weapons, the station is stepped one station by pressing the selected weapon switch on the aircraft controller grip assembly.

21. The armament computer keeps the last selected priority station for each weapon type. If a weapon is reselected, the stored priority station is sent to the MC system for display on the stores display.

22. After the priority weapon is launched, failed, hung, or jettisoned, the next available station in the launch sequence is selected.

23. A/G weapons may be stepped by pressing the STEP pushbutton switch on the stores display.

24. Current Weapon Count. The total number of each type of weapon loaded is sent to the MC system as current weapon count. The current weapon count is displayed on the stores display.

25. STEP Option. The step option is sent to the MC system for display when more than one weapon station has the selected weapon loaded.

26. **A/A and A/G Ready Status.** When a weapon is selected, the A/A or A/G ready status of the weapon is sent to the MC system for display.

27. A/A ready status is enabled when an A/A weapon and priority station are selected and the master arm signal is arm. A/A ready is used by the armament computer for weapon release logic.

28. A/G ready status is enabled when an A/G weapon and priority station are selected, master arm signal is arm, and the A/G program complete signal is enabled. The A/G ready signal is used for armament computer release logic and is sent to the MC system for display logic.

29. **MISSION COMPUTER SELECT.** The MC system receives the selected weapon code and selects the displays on the DDI and internal computation logic for the selected weapon. In A/G mode, the MC system provides pushbutton switch data from the displays to the SMS. In A/A mode, the MC system will display the stores display on left DDI and radar on the right DDI.

30. **SIMULATION MODE (SIM).** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. For

detailed weapon select description of SIM mode operation refer to WP026 01.

31. **DISPLAYS.** Stores displays are provided on the left/right DDI and Head-Up Display Unit AN/AVQ-28.

32. **Left DDI.** The stores display is normally displayed on the left DDI. In A/A mode, when a weapon is selected, SEL is displayed for station status on the wing form of the priority station. When two AIM-9 are loaded on stations 2 and 8, L SEL or R SEL is displayed when selected for release. On aircraft AFTER AFC 253 OR 292, when two AIM-120 missiles are loaded on stations 2, 3, 5, 7, and 8, L SEL or R SEL is displayed when selected for release.

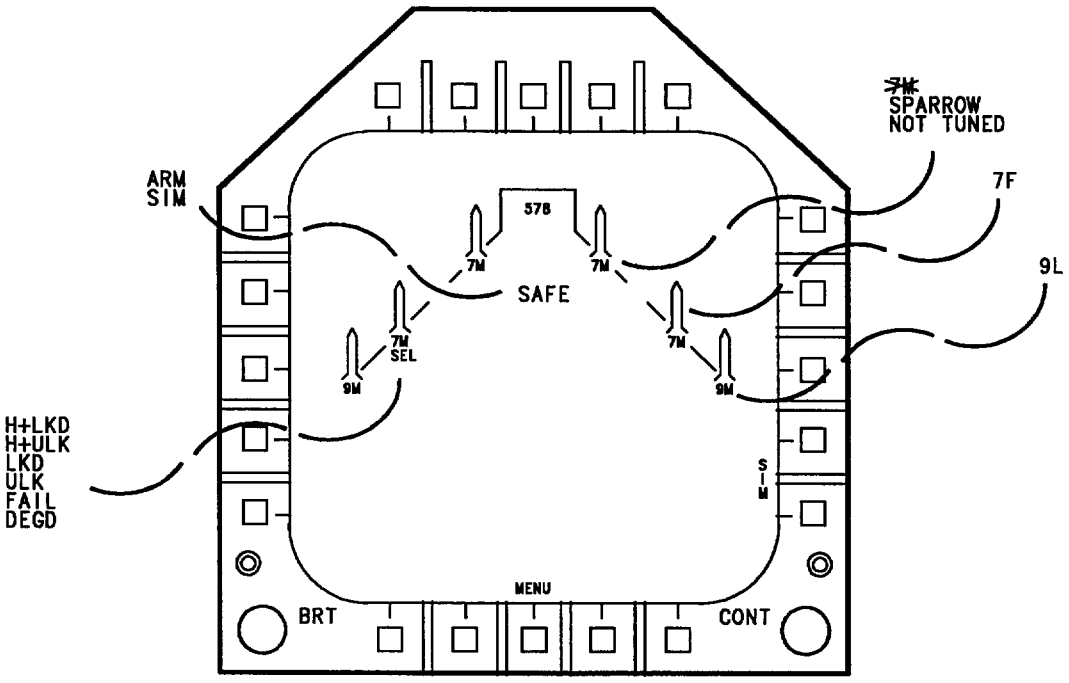
33. When A/G aircraft master mode is selected the acronym for the A/G weapons loaded are displayed under the top row of pushbutton switches. When pressed the weapon is selected and a box is displayed around the legend by the pushbutton switch and on the wing form display. When a video weapon is selected, the stores display is replaced with the weapon video display.

34. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F-18 AFC 74, AGM-84 Harpoon is available. When Harpoon is selected, Harpoon LOS cue is displayed on upper right side of stores display. A Harpoon timing cue is displayed on upper left of stores display for twenty seconds after power up. In addition to common pushbutton options, Harpoon display includes Safe Disable (SAF DSBL) option for training Harpoon. HARM Override (HRM OVRD) option is provided on Harpoon LOS display anytime a HARM weapon code is set on armament computer thumbwheel switches. The current HARM operating mode, self-protect (SP), target-of-opportunity (TOO) or pre-briefed (PB), is displayed directly above HRM OVRD.

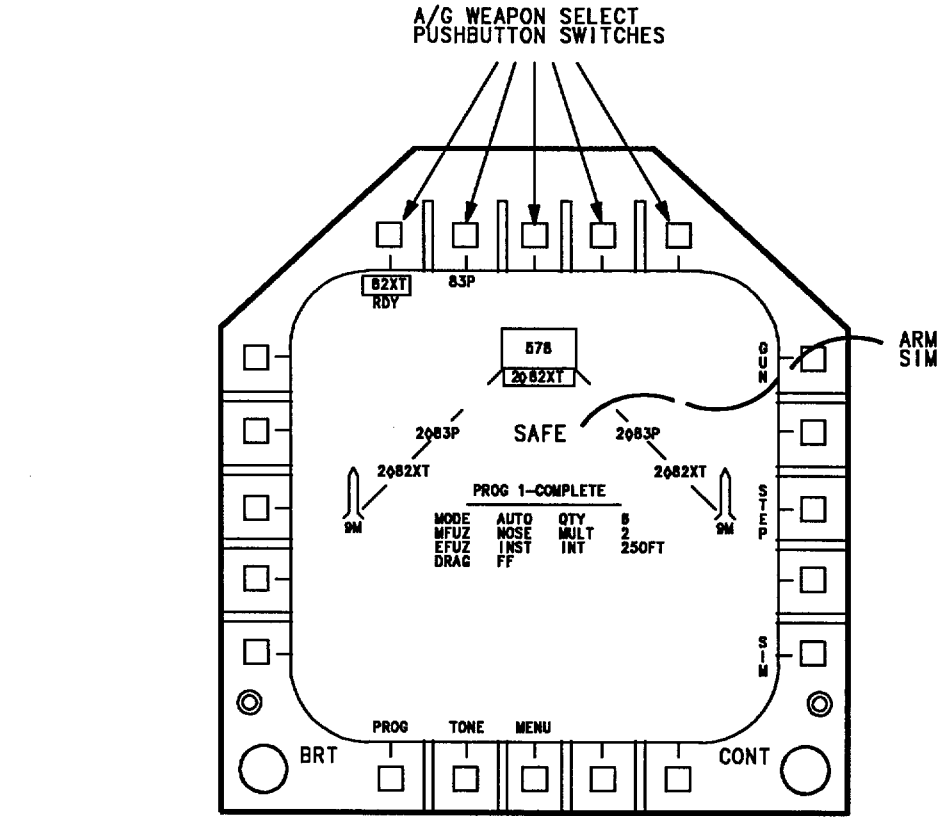
35. **Right DDI.** The right DDI display in A/A mode displays the radar. The selected weapon 9L, 9M, 7F, 7M or GUN is displayed in the upper right corner of the radar display. The existing weapon count is also displayed.

36. On aircraft AFTER AFC 253 OR 292, the right DDI display in A/A mode displays the MSI attack display. The selected weapon 9L, 9M, 7F, 7M, 7H, AA, AB, AC, or GUN is displayed in the upper right corner of the MSI attack display display. The existing weapon count is also displayed.

37. **HUD Display.** The HUD displays the A/A weapon selected and current weapon count. In A/G operation, the weapon or bomb mode is displayed. HUD steering data for the selected weapon is displayed as a function of weapon select.



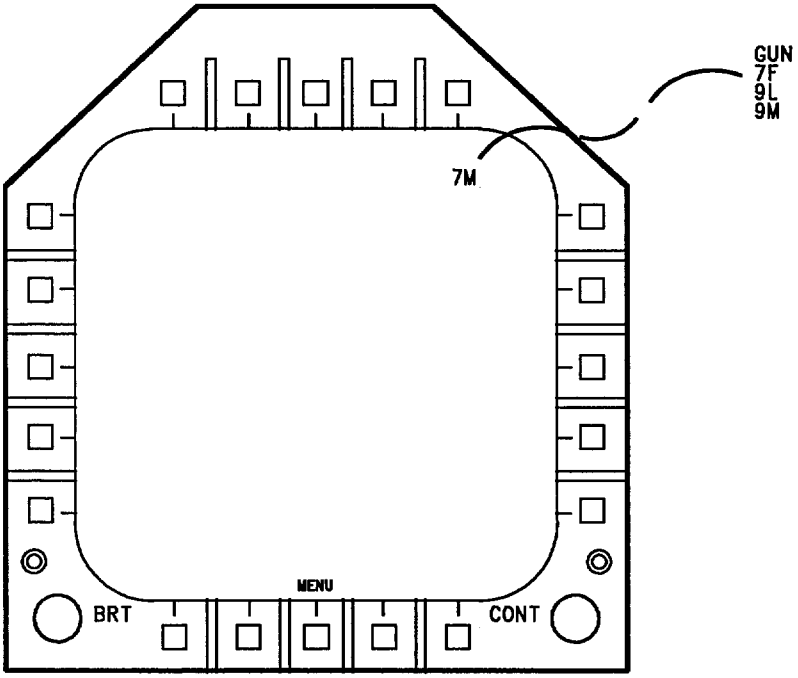
1 A/A STORES DISPLAY (TYPICAL-AIM-7(7M) SELECTED, STATION 2 PRIORITY STATION)



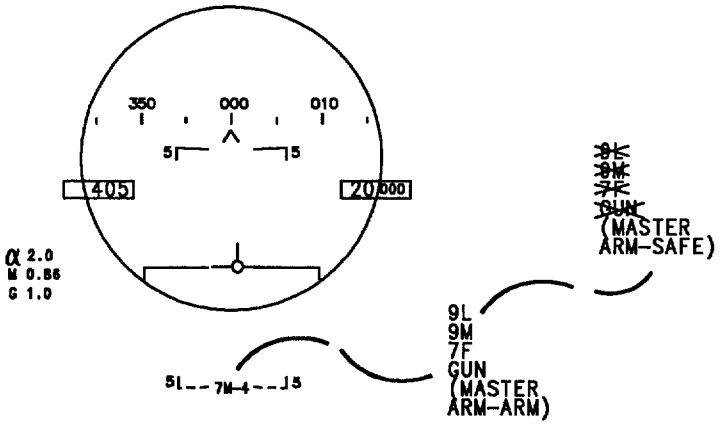
1 A/G STORES DISPLAY (82XT BOMB SELECTED, WEAPON STATION 5 PRIORITY STATION SELECTED)

02300101

Figure 1. Weapon Select Displays (Sheet 1)



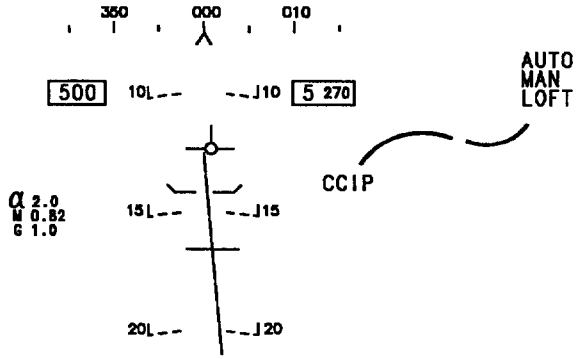
1 A/A RADAR DISPLAY (7M, 7F, GUN, 9M, OR 9L DISPLAYED ONLY WHEN WEAPON IS SELECTED)



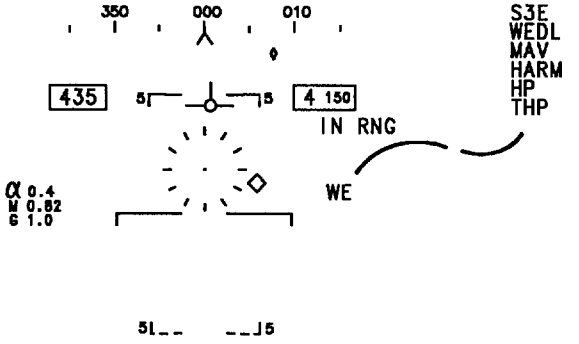
1 A/A HUD DISPLAY (TYPICAL)

02300102

Figure 1. Weapon Select Displays (Sheet 2)



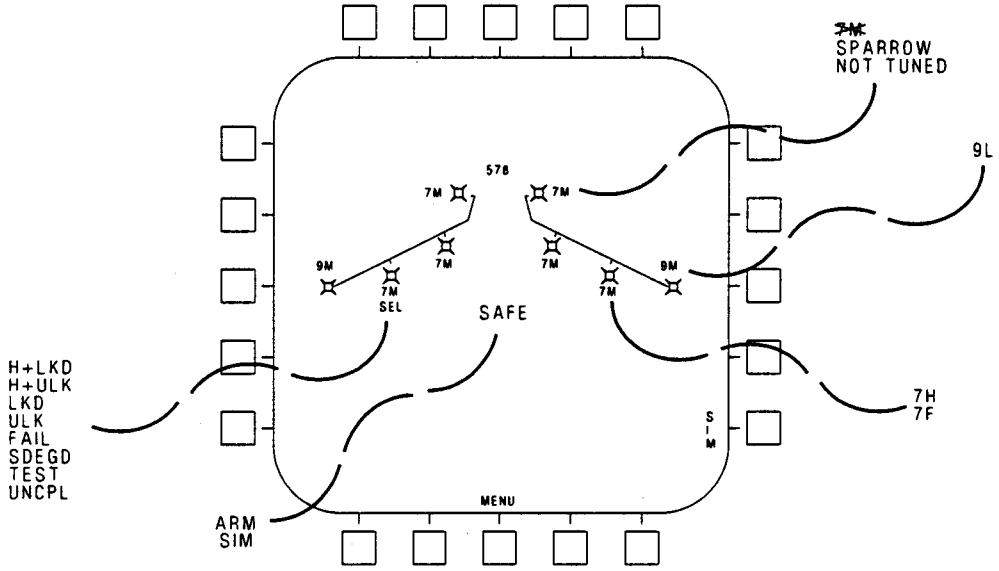
1 A/G BOMB HUD DISPLAY (TYPICAL)



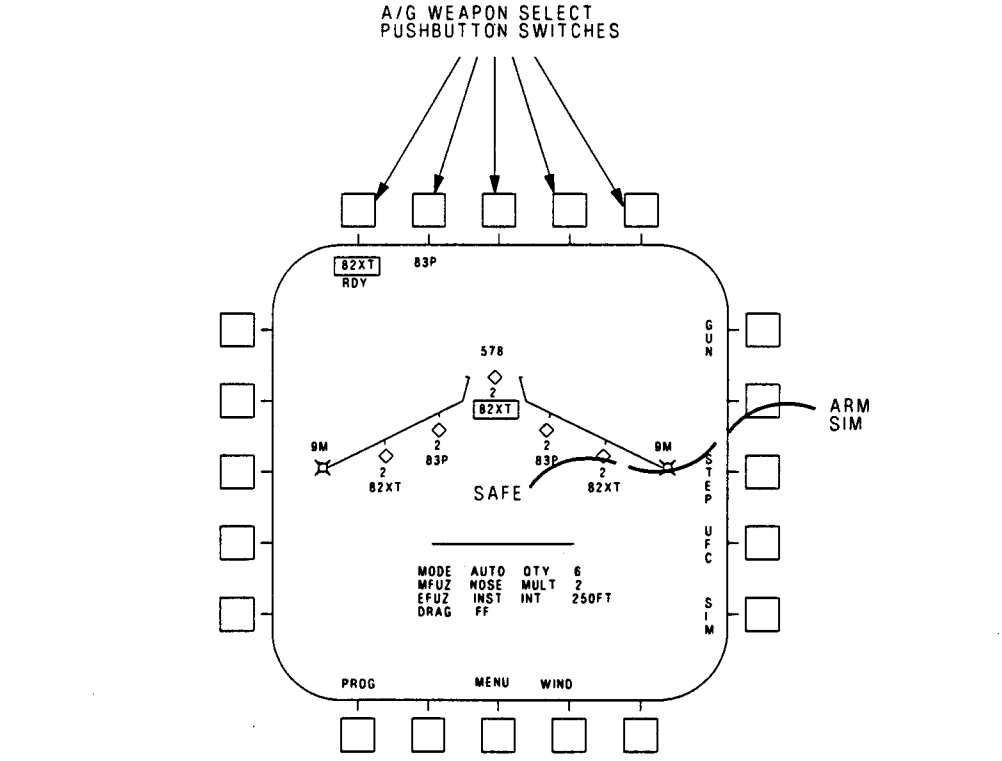
1 A/G GUIDED WEAPON HUD DISPLAY (TYPICAL)

02300103

Figure 1. Weapon Select Displays (Sheet 3)



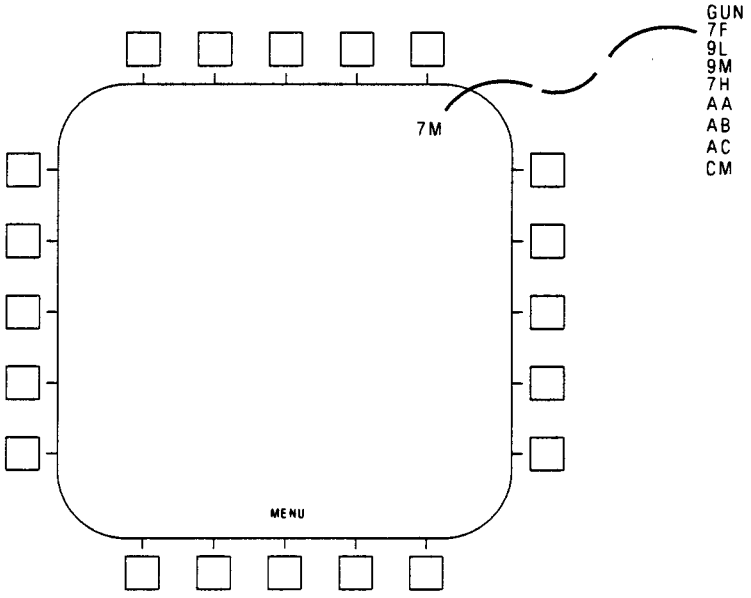
2 A/A STORES DISPLAY (TYPICAL-AIM-7(7M) SELECTED, STATION 2 PRIORITY STATION)



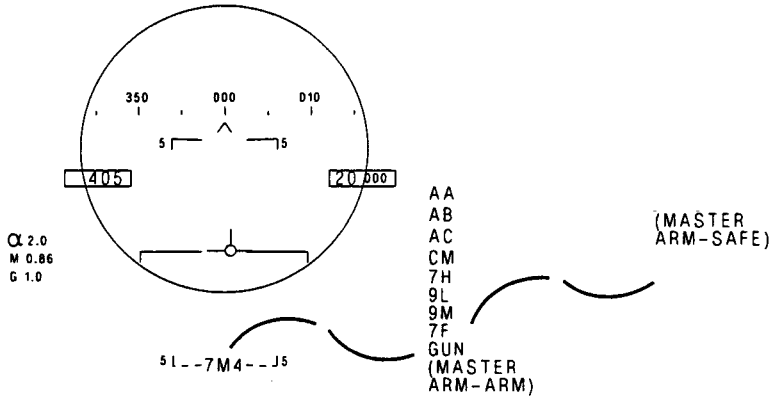
2 A/G STORES DISPLAY (82XT BOMB SELECTED, WEAPON STATION 5 PRIORITY STATION SELECTED)

02300104

Figure 1. Weapon Select Displays (Sheet 4)



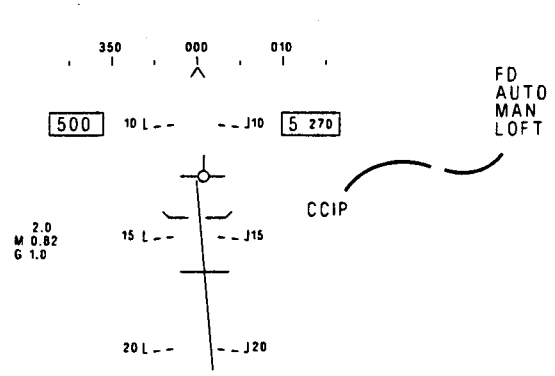
2 A/A ATTACK DISPLAY



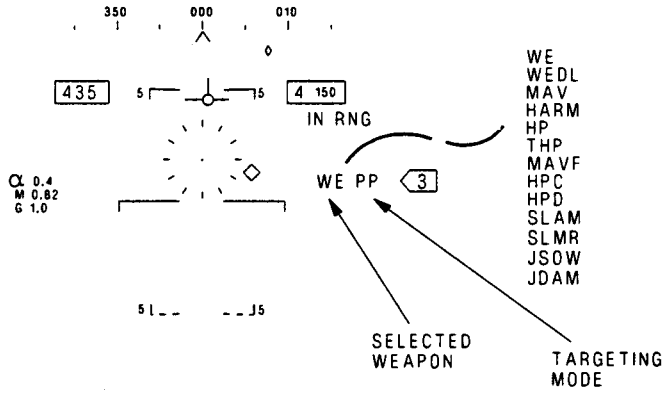
2 A/A HUD DISPLAY (TYPICAL)

02300105

Figure 1. Weapon Select Displays (Sheet 5)



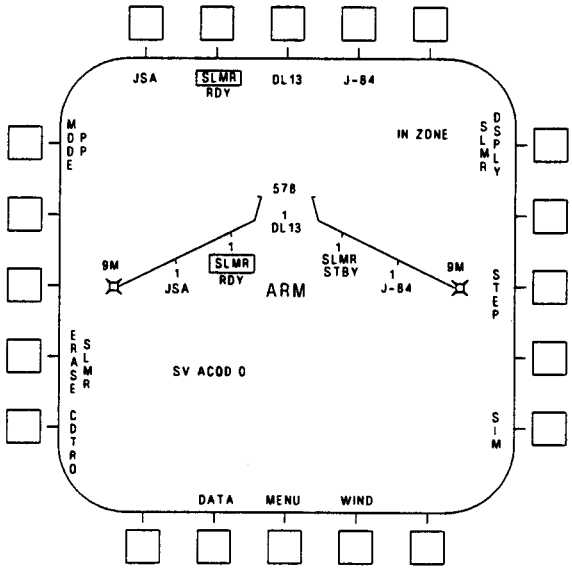
2 A/G BOMB HUD DISPLAY (TYPICAL)



2 A/G GUIDED WEAPON HUD DISPLAY (TYPICAL)

02300106

Figure 1. Weapon Select Displays (Sheet 6)



2 1760 STORES DISPLAY (TYPICAL)
(SLAM ER SELECTED)

LEGEND

1 162394 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

2 162394 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

02300107

Figure 1. Weapon Select Displays (Sheet 7)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - WEAPON SELECT SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

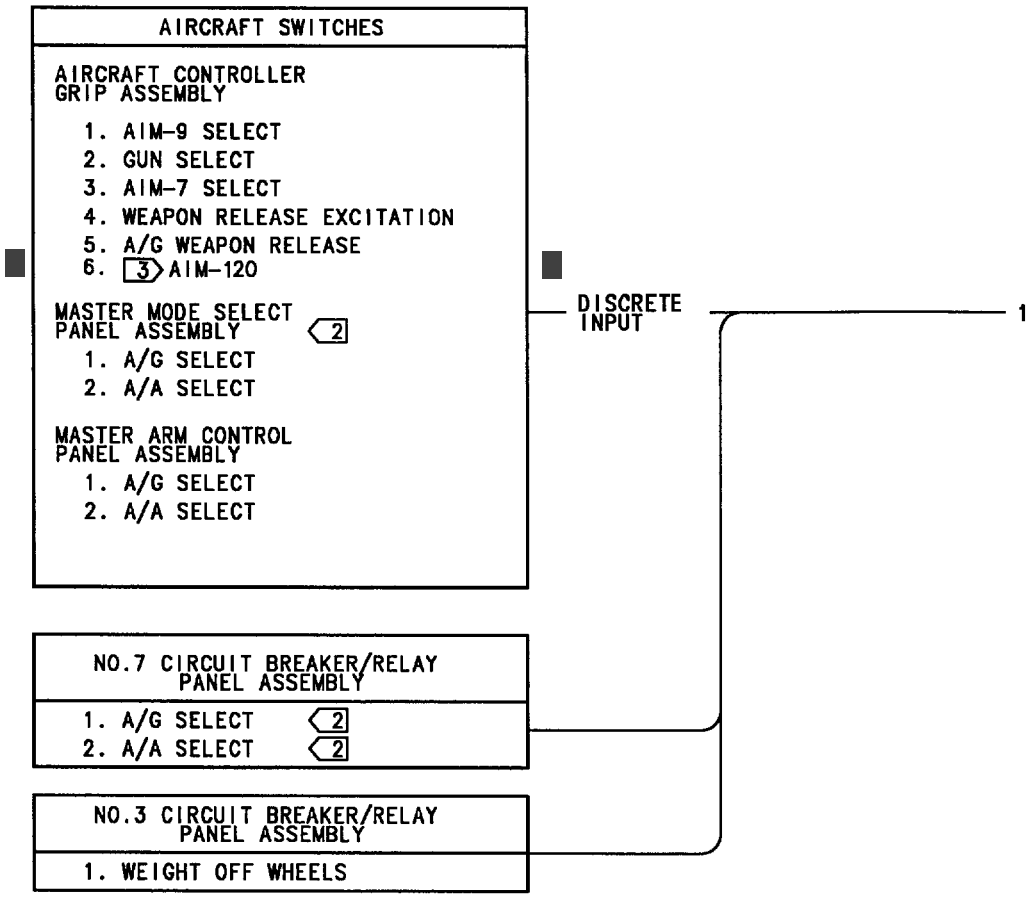
Subject	Page No.
Introduction	1
Weapon Select Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

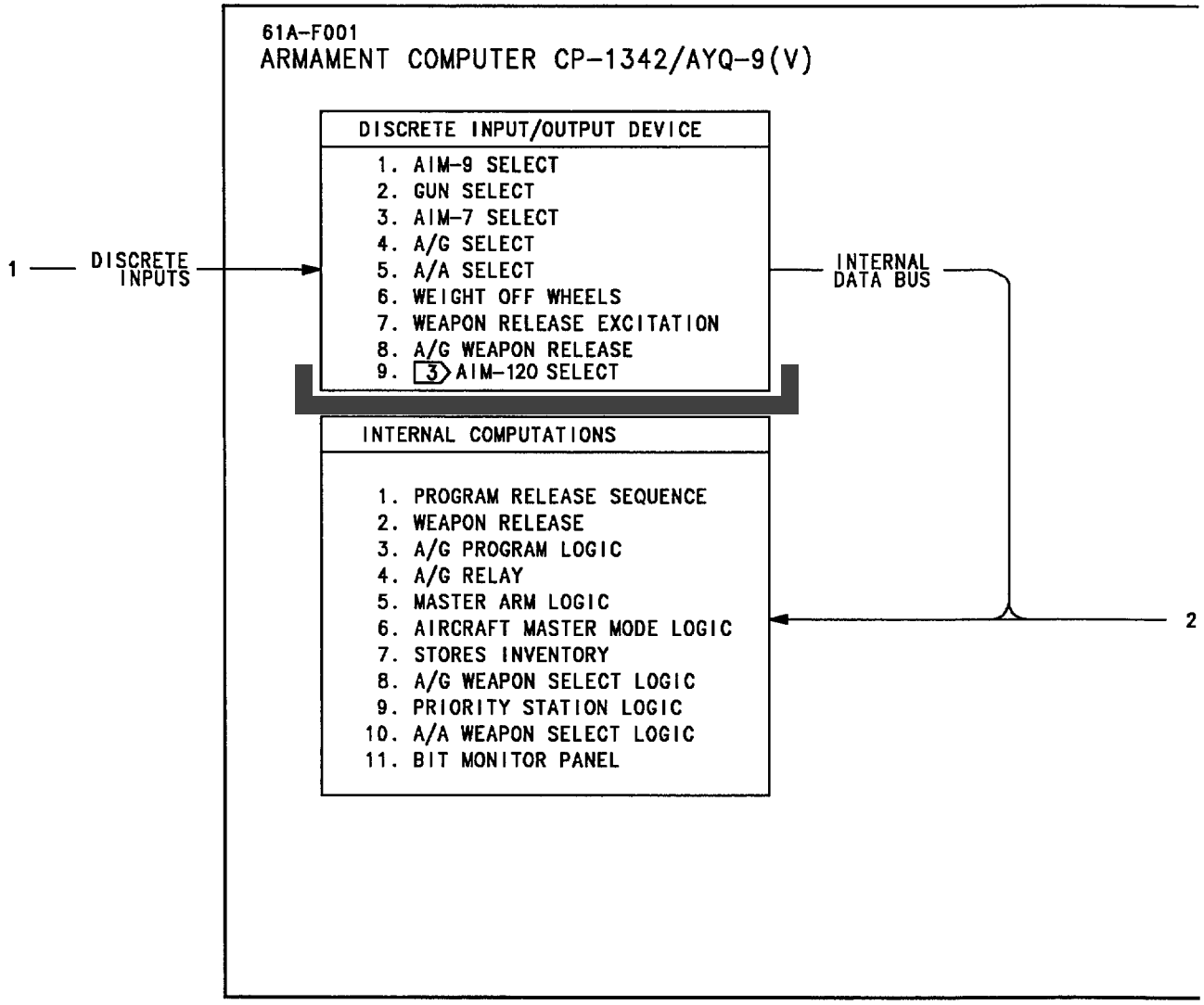
1. INTRODUCTION.

2. The schematic in this work package provides support for the data in WP023 00.



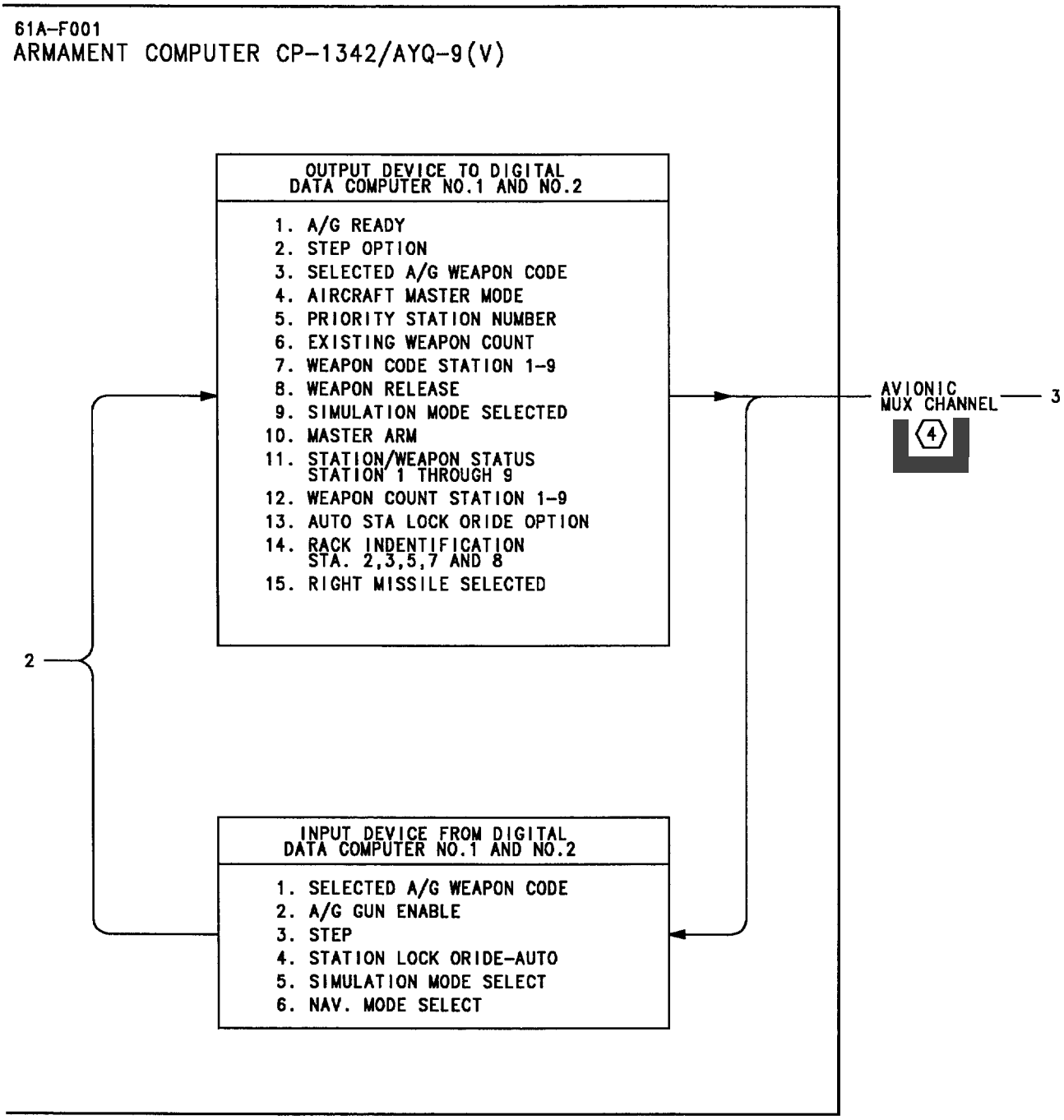
02400101

Figure 1. Weapon Select Simplified Schematic (Sheet 1)



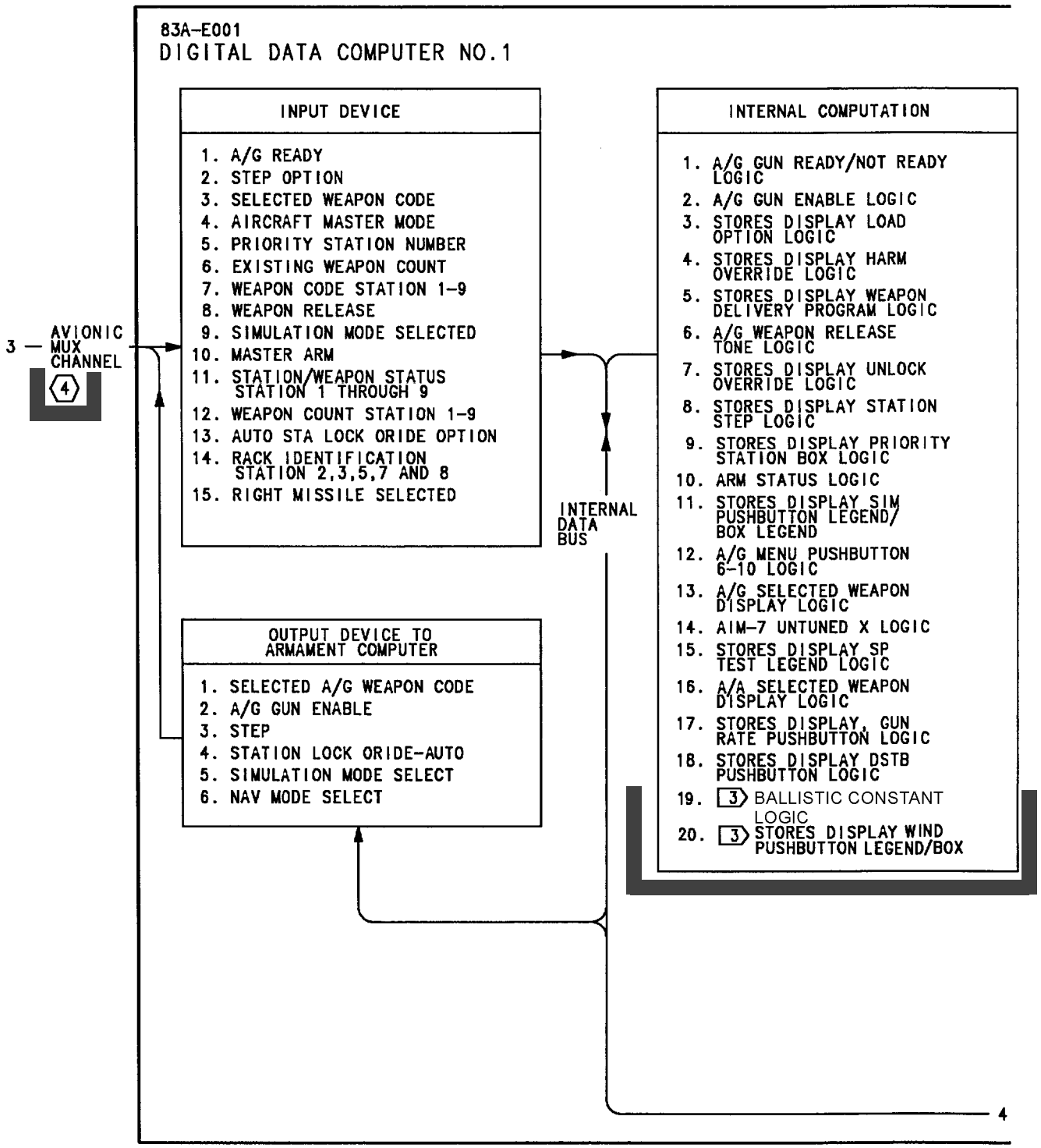
02400102

Figure 1. Weapon Select Simplified Schematic (Sheet 2)



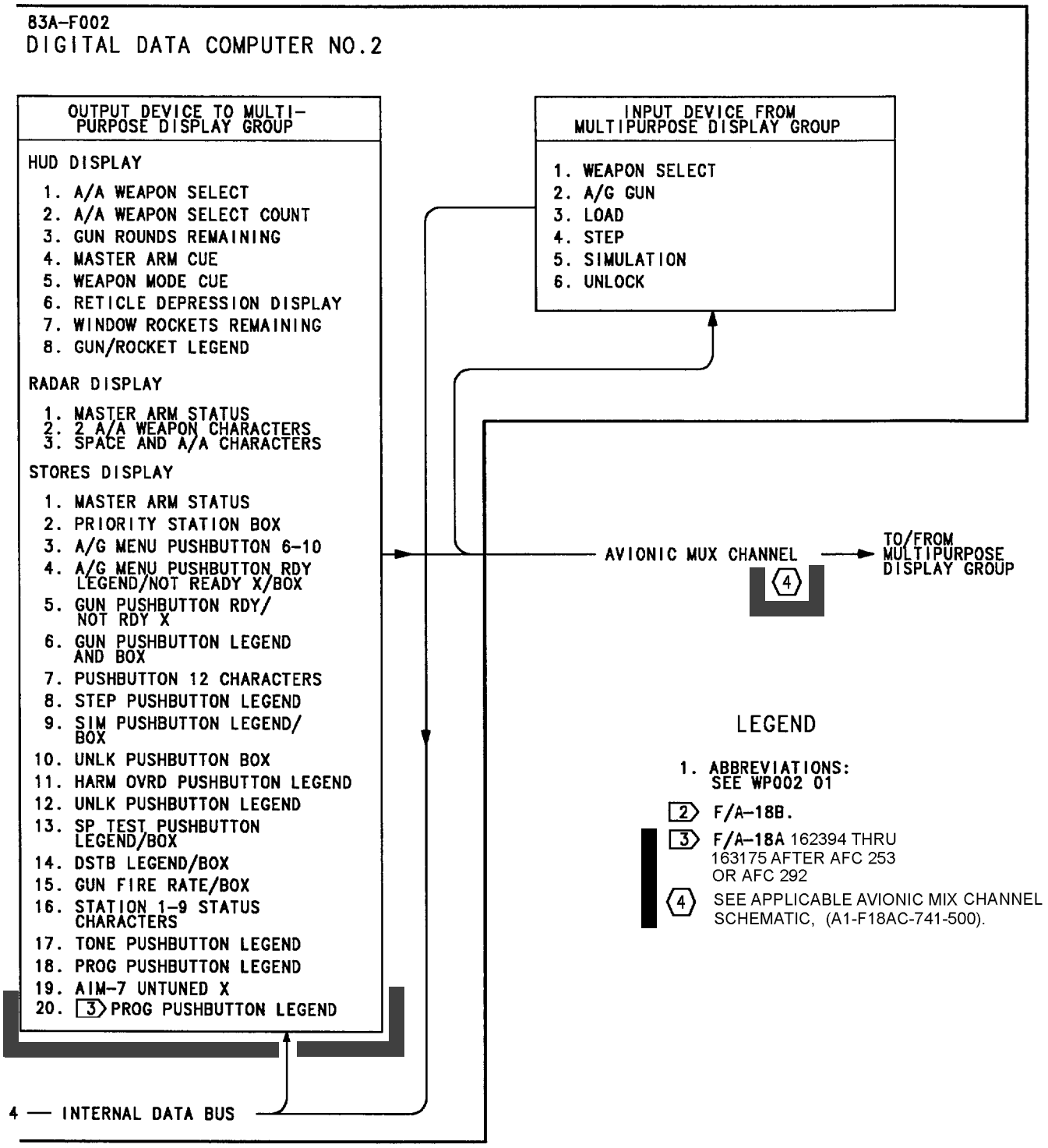
02400103

Figure 1. Weapon Select Simplified Schematic (Sheet 3)



02400104

Figure 1. Weapon Select Simplified Schematic (Sheet 4)



02400105

Figure 1. Weapon Select Simplified Schematic (Sheet 5)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - MASTER ARM

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Master Arm Simplified Schematic WP026 00
Weapon Control System A1-F18AC-740-500
Master Arm Schematic WP017 00

Alphabetical Index

Subject	Page No.
Aircraft Guided Missile Launcher LAU-118( ) Power - 161353 THRU 161987 BEFORE F/A-18 AFC 74	3
Aircraft Interlock Logic	2
Armament Computer Functions	3
Countermeasures Dispensing Set AN/ALE-39 Interface	2
Introduction	2
Master Arm Displays	4
Master Arm Displays, Figure 1	5
Master Arm Operation	2
Mission Computer System Functions	3
Power	2
Simulation Mode	4

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) master arm operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP026 00 for master arm operation simplified schematic. The simplified schematic shows interface between aircraft switching, Armament Computer CP-1342/AYQ-9(V), and mission computer (MC) system.

4. The simplified schematic lists armament computer and MC system functions used for master arm operation. Master Arm Schematic (A1-F18AC-740-500, WP017 00) shows detailed weapon select operation.

5. Figure 1 shows displays related to master arm operation.

6. Refer to WP014 00 for component locations.

7. MASTER ARM OPERATION.

8. The MASTER switch is located on the master arm control panel assembly. When set to SAFE, the switch has no output. When set to ARM, a 28vdc master arm discrete is sent to the armament computer and Countermeasures Dispensing Set AN/ALE-39.

9. On 161353 THRU 161987 BEFORE F/A-18 AFC 74, the 28vdc master arm discrete is also used to enable relays for the aircraft guided missile launchers on stations 2, 3, 7 and 8.

10. The 28vdc master arm discrete is also used in the pylon release consent circuits for stations 2, 3, 7 and 8.

11. Master arm operation in this work package is listed below:

a. power

b. aircraft interlock logic

c. Countermeasures Dispensing Set AN/ALE-39 interface

d. Aircraft Guided Missile Launcher LAU-118( ) power

e. armament computer functions

f. mission computer system functions

g. release consent functions

h. simulation mode

i. master arm displays

12. **POWER.** The MSTR ARM circuit breaker on no. 7 circuit breaker/relay panel assembly provides 28vdc left bus power to the master arm interlock circuits. The circuit breaker sends power to the ARMAMENT OVERRIDE switch and the LDG GEAR control.

13. **AIRCRAFT INTERLOCK LOGIC.** The master arm signal is interlocked through the LDG GEAR control handle switches and relay contacts of RMG WOW (weight off wheels) relay no. 3, 12K-E012. With the LDG GEAR control handle up and weight off wheels, 28vdc is sent to the MASTER switch.

14. For ground maintenance, the landing gear handle and weight off wheels interlocks can be overridden by the ARMAMENT OVERRIDE switch.

15. When the LDG GEAR Control handle is down, 28vdc is sent to a second set of switches of the MASTER switch that can enable the armament override function. With the LDG GEAR control handle down and the MASTER switch set to ARM, 28vdc is sent to the ARMAMENT OVERRIDE switch. When set to on, the solenoid switch remains engaged as long as the MASTER switch is at ARM. The power that holds the solenoid switch engaged is also sent to the armament computer for armament override status.

16. When the ARMAMENT OVERRIDE switch is on, the second set of contacts of the switch sends 28vdc circuit breaker power to the MASTER switch. This voltage bypasses the aircraft interlock circuits, and provides ARM power to the armament computer.

17. When the left main landing gear is weight off wheels, 28vdc is routed to 12K-E018 LMG WOW relay no. 2. The energized relay sends a ground signal to the armament computer. The ground input is used by the armament computer as part of the ARM logic.

18. **COUNTERMEASURES DISPENSING SET AN/ALE-39 INTERFACE.** With the MASTER switch set to ARM, 28vdc is sent to ALE-39 sequence power supply relay in no. 2 relay panel assembly. When the

DISPENSER switch on the ECM control panel assembly is set to any position other than OFF, a ground for the relay coil is enabled.

19. The energized relay sends 28vdc to the left/right Electrical Switching Units when RMG WOW relay no. 7 is energized to enable dispensing set release.

20. **AIRCRAFT GUIDED MISSILE LAUNCHER LAU-118( ) POWER - 161353 THRU 161987 BEFORE F/A-18 AFC 74.** The 28vdc ARM power is applied to the coils of LAU-118 solenoid station 7 and 8 relay in no. 2 relay panel assembly and LAU-118 solenoid station 2 and 3 relay in no. 7 circuit breaker/relay panel assembly. When the relays energize, 28vdc power is sent to the LAU-118 through energized weapon station power control relays.

21. **ARMAMENT COMPUTER FUNCTIONS.** The arm, armament override, and LMG WOW relay no. 2 discrete signals are sent to the armament computer for release and testing logic. The safe/arm signal is sent to the MC system. Safe/arm is used for display logic by the MC system.

22. Master arm is set to arm and sent to the MC system when the below exists:

a. Ground Operation

(1) landing gear control handle is down

(2) master switch set to ARM

(3) armament override switch set to override

(4) SIM mode not selected

b. Inflight Operation

(1) landing gear control handle is up

(2) RMLG and LMLG weight off wheels

(3) master switch set to ARM

(4) SIM mode not selected

23. Master arm is set to safe and sent to the MC system when any of the below exists:

a. Ground Operation

(1) landing gear control handle is up

(2) master switch set to SAFE

(3) armament override switch deenergized

(4) SIM mode selected

b. Inflight Operation

(1) landing gear control handle down

(2) RMLG and LMLG weight on wheels

(3) master switch set to SAFE

(4) SIM mode selected

24. When SIM mode is deselected on the stores display and master arm switch is in ARM position, the master arm switch must be cycled to SAFE and back to ARM for master ARM to exist. Simulation mode is selected when the below exists:

a. master arm is SAFE

b. SIM selected on stores display

25. The armament computer uses master arm for release logic for all weapon release functions except emergency jettison. Air-to-ground (A/G) weapons require A/G ready logic complete for weapon release. The arm signal is one of the signals required to complete A/G ready logic. A/G ready is sent to the MC system for displays.

26. Armament override is applied to the armament computer during ground maintenance. High current driver BIT is disabled when stores are loaded on the weapon stations and the weapon insertion panel switches are not set to no store (all zeros).

27. **MISSION COMPUTER SYSTEM FUNCTIONS.** The armament computer sends master arm status to the (MC) system for the functions listed below:

a. strike camera command (pointed)

b. comm tone enable

c. data link discrete code 4 enable

d. shoot cue logic

e. AIM-7 launch delay logic

f. weapon release mode command

g. laser fire (AFTER AFC 253 OR 292)

28. ARMAMENT OVERRIDE is applied to the armament computer during ground maintenance. High current driver BIT is disabled when stores are loaded on the weapon stations and the weapon insertion panel switches are not set to no store (all zeros).

29. **RELEASE CONSENT FUNCTIONS.** The 28vdc master arm signal is routed to weapon stations 2 and 8 wing pylon relay assembly 61A-W258 to energize release consent relays 61K-W249 and 61K-W250.

30. Stations 3 and 7 pylon release consent relays 61K-W249 and 61K-W250 are energized by the 28vdc master arm signal.

31. Release consent operation is in WP006 01.

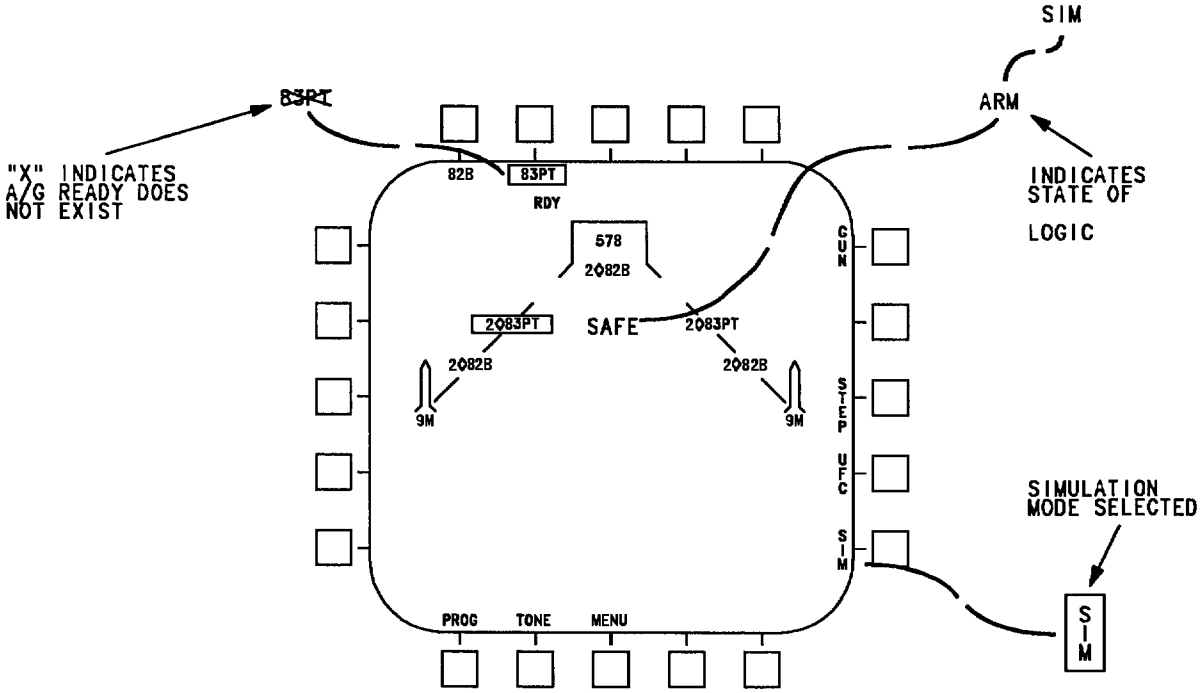
32. **SIMULATION MODE (SIM).** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. Master arm must be SAFE to select SIM mode. When SIM mode is selected SAFE is set no matter what position the master arm switch is set to. For detailed description of SIM mode operation, refer to WP026 01.

33. **MASTER ARM DISPLAYS.** The MC system controls the arm display data sent to the left/right Digital Display Indicators (DDI) IP-1317( ) and Head-Up Display (HUD) Unit AN/AVQ-28.

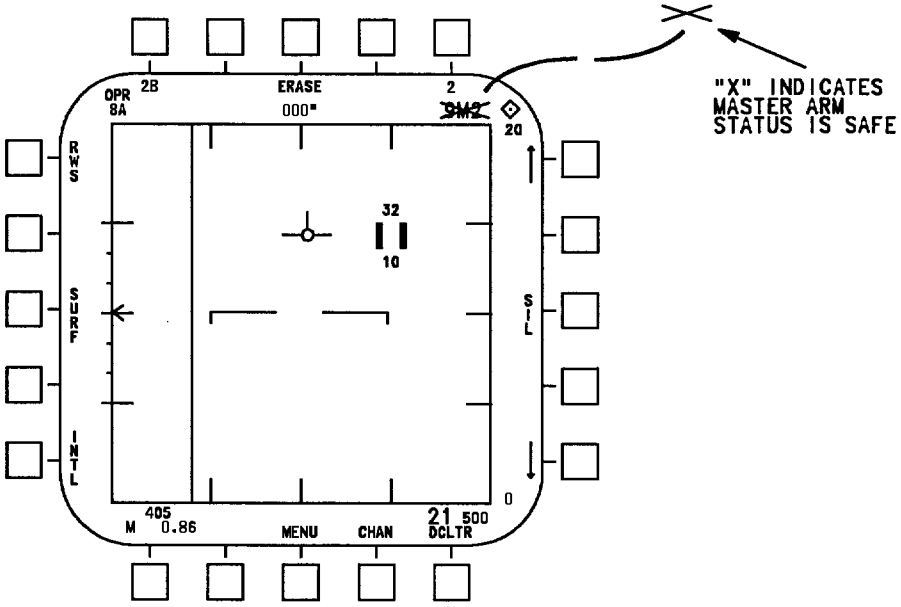
34. On the stores display, SAFE, ARM or SIM is continuously displayed in the center of the wing form. An X is displayed through the A/G pushbutton switch acronym when A/G ready is not sent to the MC system from the armament computer.

35. During A/A operation, the radar display has the selected weapon and weapon count displayed in the upper right corner. When the MASTER switch is in SAFE, an X is displayed over the selected weapon acronym (figure 1). The HUD display is the same as the radar display.

36. HUD displays during A/G operation show the selected weapon acronym or bomb/rocket delivery mode on the left of the display. An X through the display indicates A/G ready is not complete.



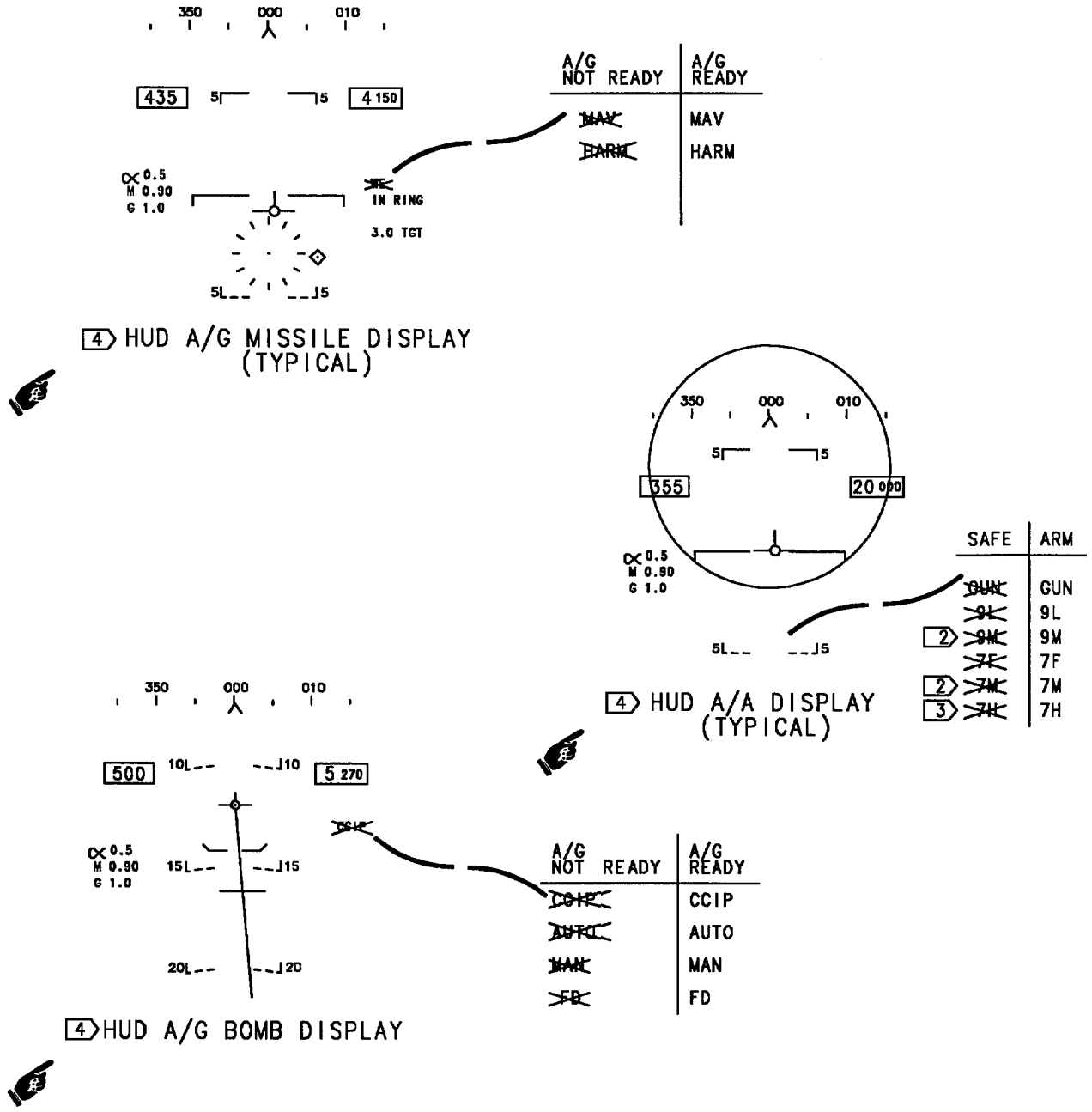
4 STORES DISPLAY (TYPICAL)



4 A/A RADAR DISPLAY (TYPICAL)

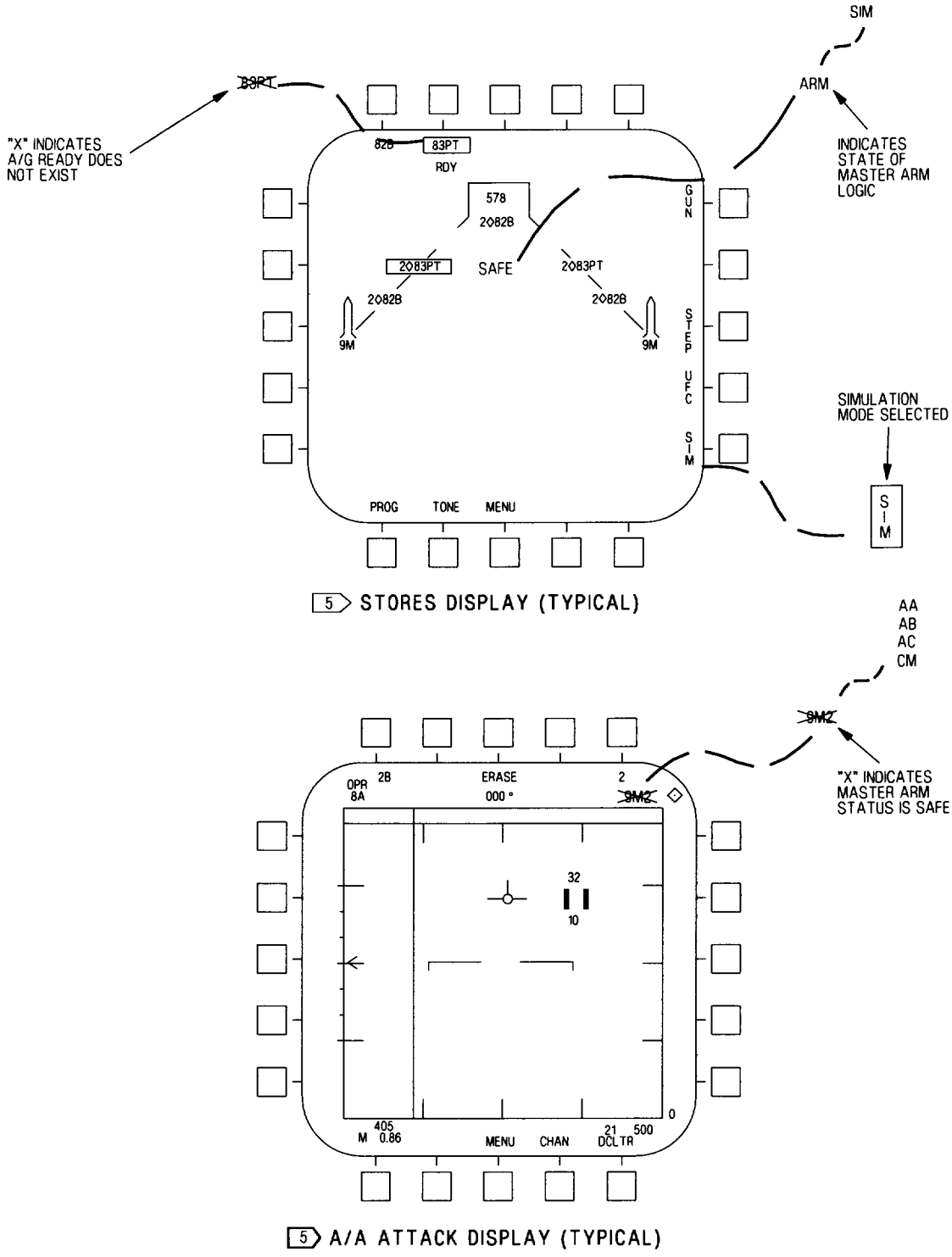
02500101

Figure 1. Master Arm Display (Sheet 1)



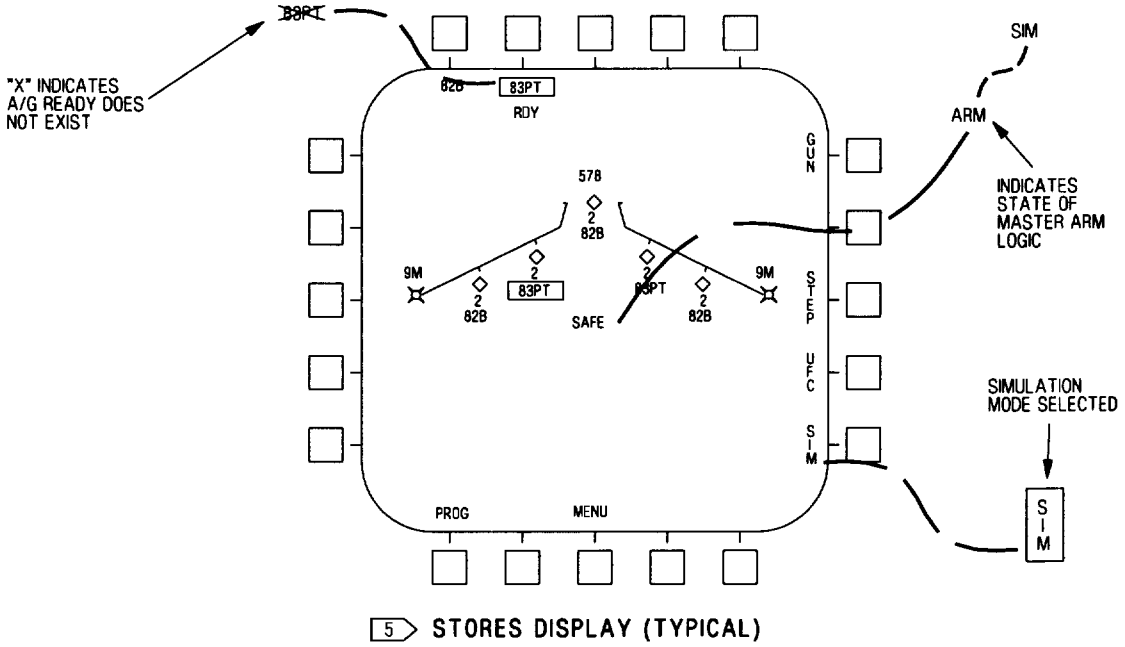
02500102

Figure 1. Master Arm Display (Sheet 2)



02500103

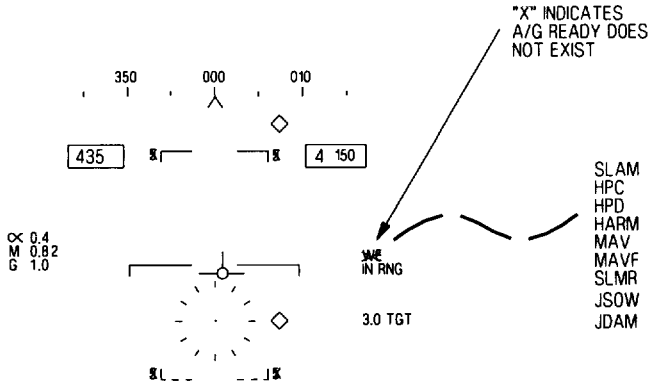
Figure 1. Master Arm Display (Sheet 3)



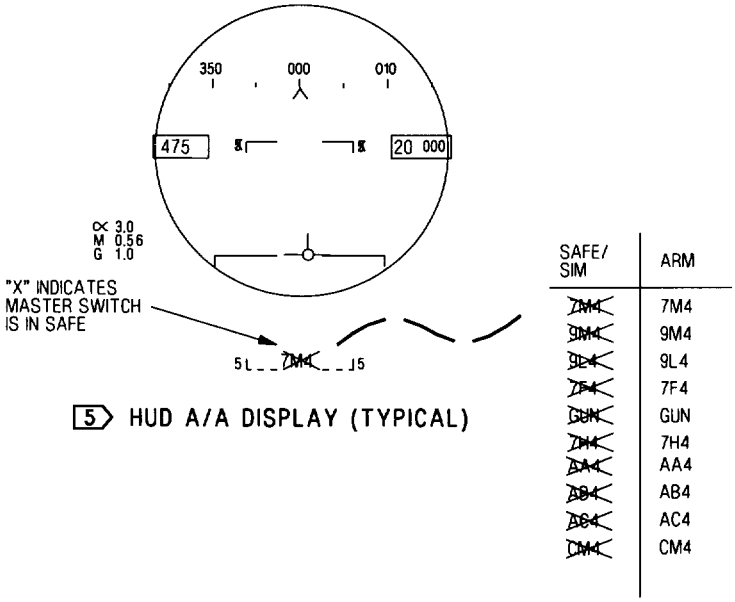
5 STORES DISPLAY (TYPICAL)

02500104

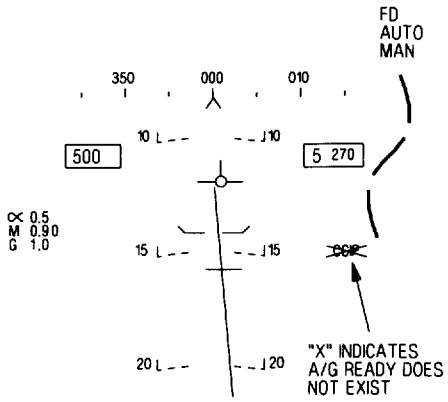
Figure 1. Master Arm Display (Sheet 4)



5 HUD A/G MISSILE DISPLAY (TYPICAL)



5 HUD A/A DISPLAY (TYPICAL)



5 HUD A/G BOMB DISPLAY

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2 162394 AND UP, ALSO 161353 THRU 161987 AFTER F18 AFC 74.

3 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000).

4 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

5 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

02500105

Figure 1. Master Arm Display (Sheet 5)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - MASTER ARM SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

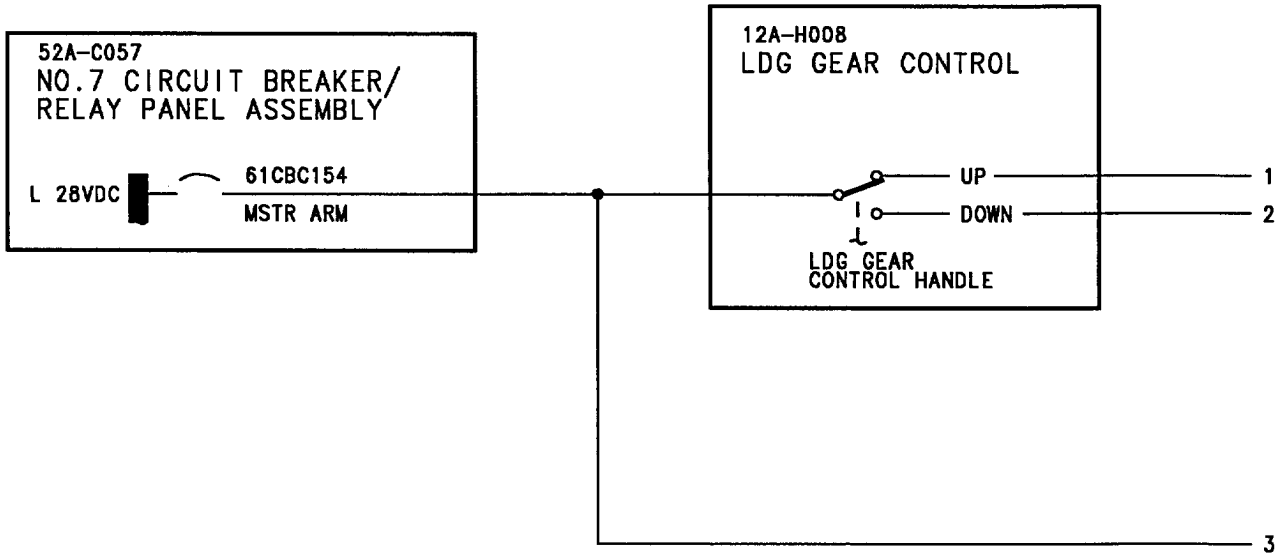
Subject	Page No.
Introduction	1
Master Arm Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

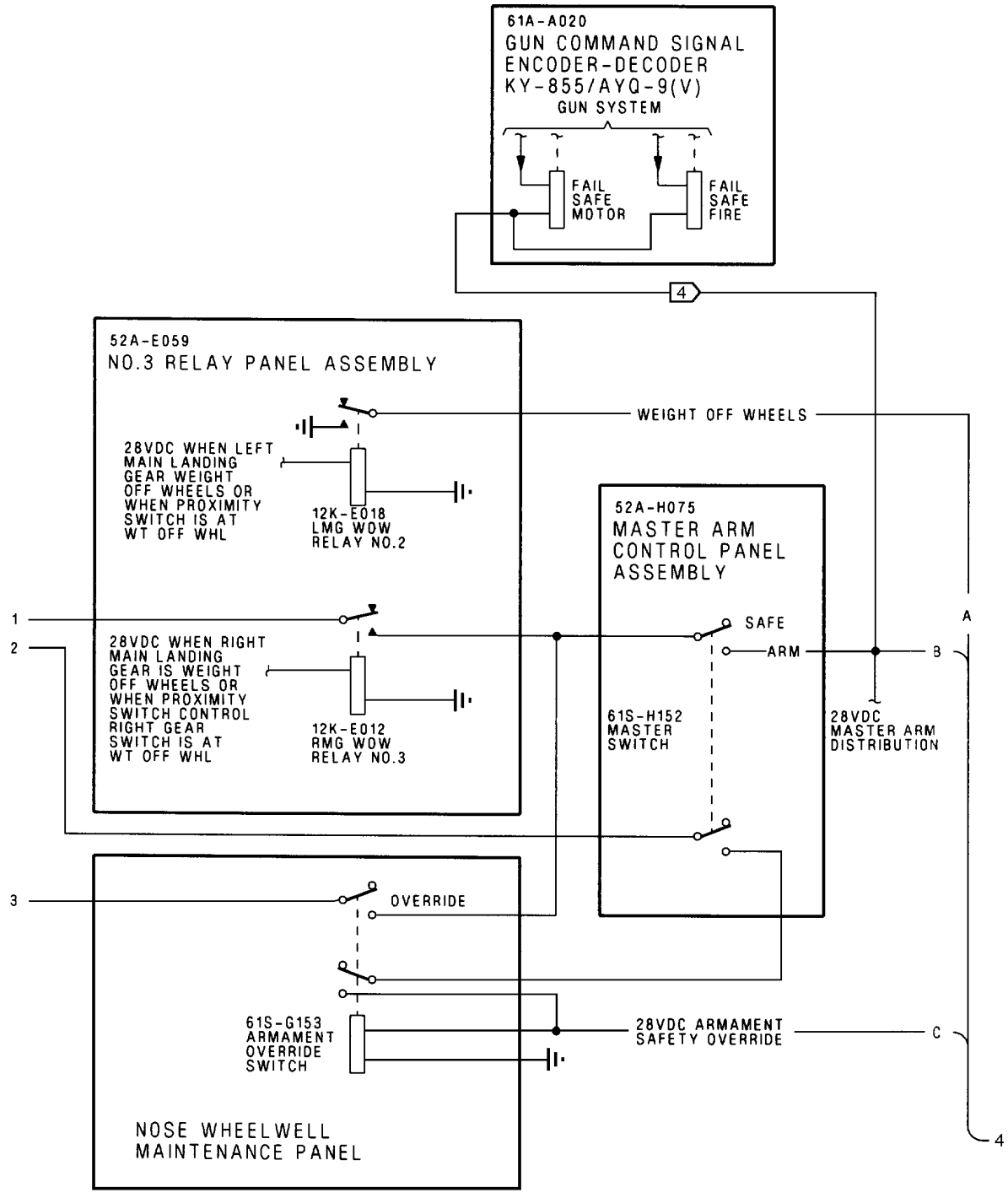
1. INTRODUCTION.

2. The schematic in this work package provides support for the data in WP025 00.



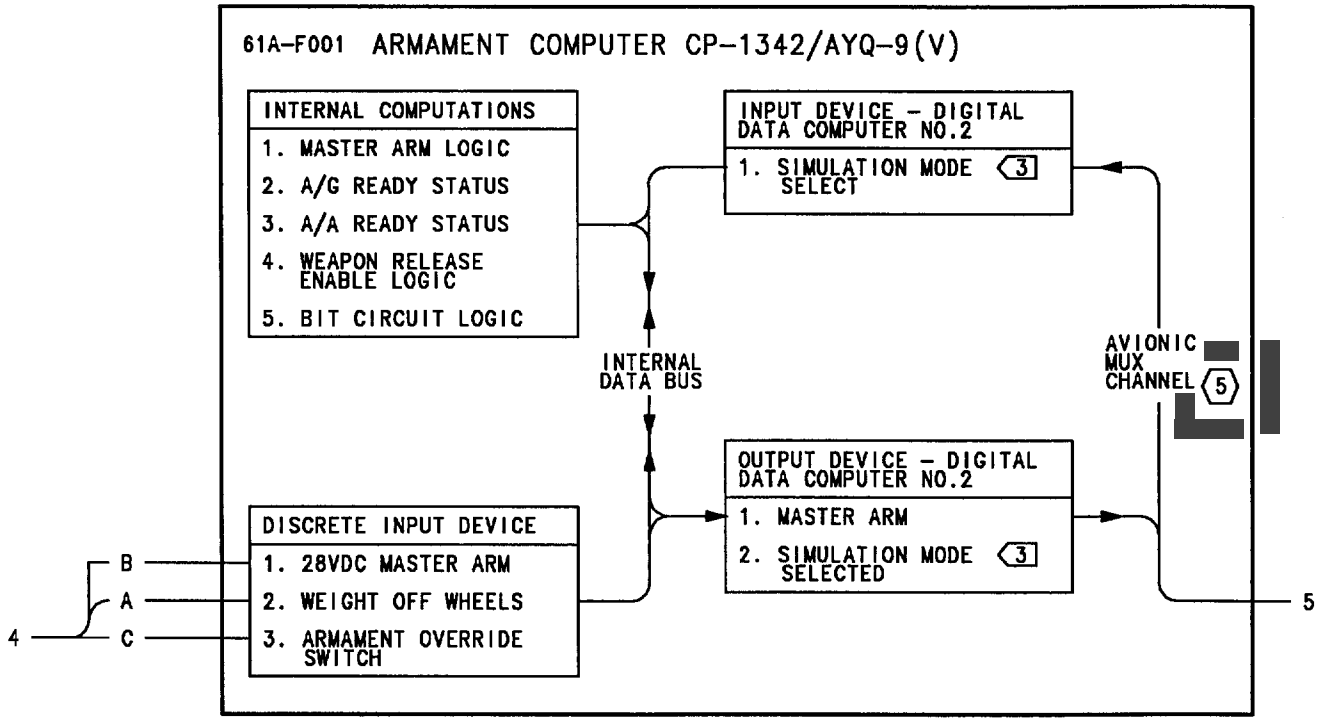
02600101

Figure 1. Master Arm Simplified Schematic (Sheet 1)



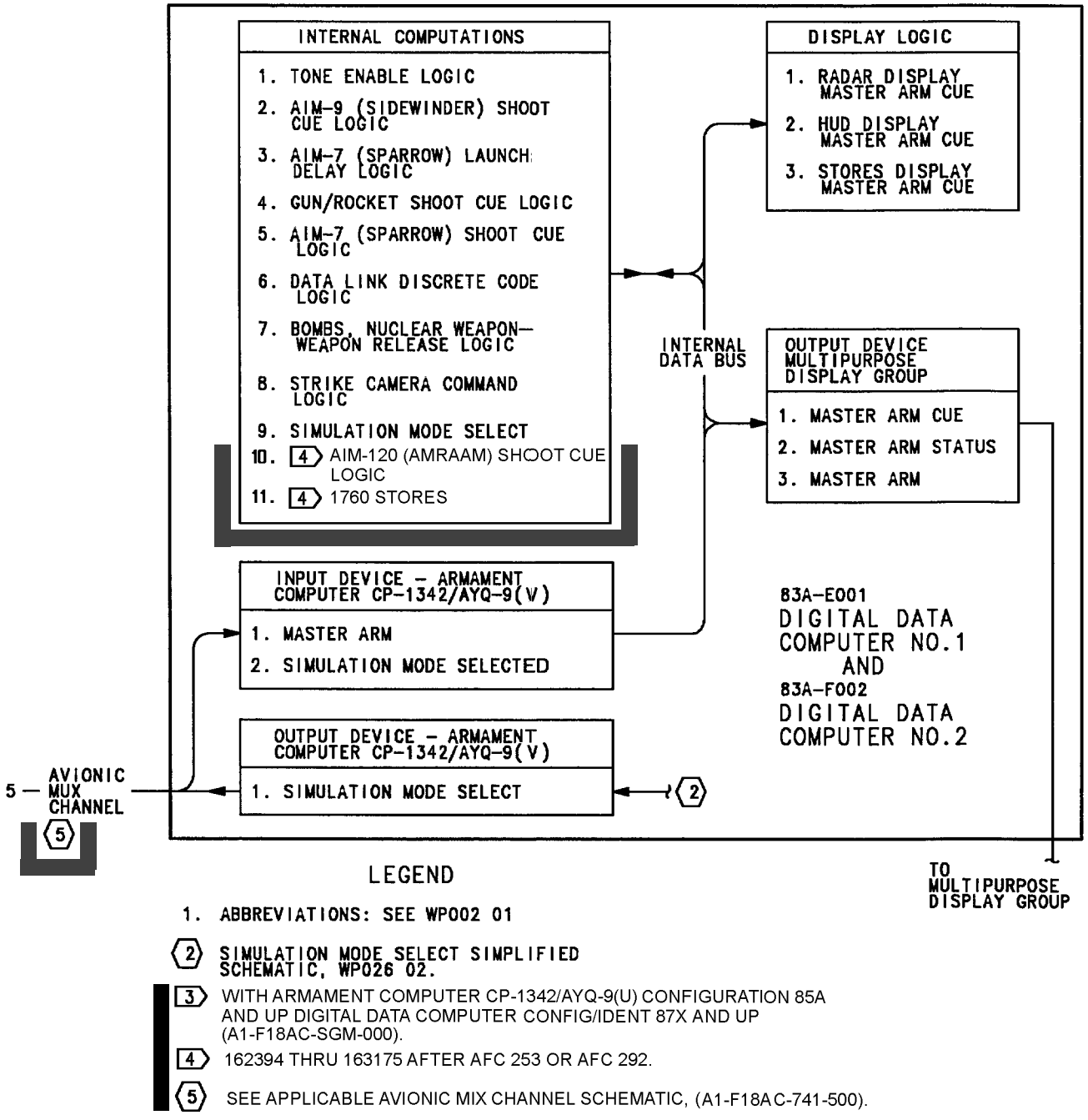
02600102

Figure 1. Master Arm Simplified Schematic (Sheet 2)



02600103

Figure 1. Master Arm Simplified Schematic (Sheet 3)



LEGEND

1. ABBREVIATIONS: SEE WP002 01

(2) SIMULATION MODE SELECT SIMPLIFIED SCHEMATIC, WP026 02.

[3] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(U) CONFIGURATION 85A AND UP DIGITAL DATA COMPUTER CONFIG/IDENT 87X AND UP (A1-F18AC-SGM-000).

[4] 162394 THRU 163175 AFTER AFC 253 OR AFC 292.

(5) SEE APPLICABLE AVIONIC MIX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

02600104

Figure 1. Master Arm Simplified Schematic (Sheet 4)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - SIMULATION MODE SELECT

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Simulation Mode Simplified Schematic WP026 02
Weapon Control System A1-F18AC-740-500
Simulation Mode Select Schematic WP021 01

Alphabetical Index

Subject	Page No.
AGM-45 Shrike	5
AGM-65 Maverick	5
AGM-84 Harpoon	5
AGM-84E SLAM	5
AGM-88 Harm	5
AIM-7 Sparrow	4
AIM-9 Sidewinder	4
AIM-120 AMRAAM (After AFC 253 or AFC 292)	4
Aircraft Master Mode	3
Bomb/Mines	4
Bomb/Mines Programming	4
Built-In Test	4
Displays	3
Emergency Jettison	5
Gun/Rockets	4
Introduction	2
Launcher/Rack Lock/Unlock	4
Master Arm	3
Selective Jettison/Auxiliary Release	5
Simulation Mode, Figure 1	6
Simulation Mode Operation	2
Stores Inventory	3
Tone Operation	5
Video Switching	4
Weapon Release	3
Weapon Select	3

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) simulation mode operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP026 02 for the simplified simulation mode select schematic.

4. The simplified schematic shows the interface between the Armament Computer CP-1342/AYQ-9(V) and mission computer (MC) system. The simplified schematic lists armament computer and MC system functions used for simulation mode. Simulation Mode Select Schematic (A1-F18AC-740-500, WP022 00) shows detailed simulation mode operation.

5. Refer to WP014 00 for component locations.

6. Figure 1 shows displays related to simulation mode selection.

7. SIMULATION MODE OPERATION.

8. Simulation mode (SIM) provides simulated weapon release/launch of air to air missiles and air to ground weapons. Control functions and display responses are the same as those that occur during actual weapon release/launch.

9. Simulation mode operation in this work package is provided as listed:

a. displays

b. master arm

c. aircraft master mode

d. weapon select

e. stores inventory

f. weapon release

g. launcher/rack lock/unlock

h. built-in test

i. video switching

j. AIM-7 sparrow

k. AIM-9 sidewinder

l. AIM-120 AMRAAM (AFTER AFC 253 OR AFC 292)

m. gun/rockets

n. bomb/mines

o. bomb/mines programming

p. AGM-88 HARM

q. AGM-65 maverick

r. AGM-84 harpoon

s. AGM-45 Shrike

t. tone operation

u. selective jettison/auxiliary release

v. emergency jettison

w. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM

10. **DISPLAYS.** Simulation mode is selectable in all master modes from a pushbutton switch option on the stores display, figure 1.

11. Simulation option (SIM) is displayed and selectable only when Master Arm switch is in SAFE. When simulation mode is selected, SIM is boxed.

12. On the stores display, SIM is displayed in place of ARM or SAFE when SIM mode is selected.

13. **MASTER ARM.** In SIM mode, master arm is inhibited by the SMS. If master arm switch is set to ARM while in SIM mode, the SMS will continue processing as if SAFE were selected and report SAFE to the MC system by way of the avionics mux bus. If master arm switch is in ARM when SIM mode deselect occurs, master arm logic will remain SAFE. SMS will report SAFE to the MC system until master arm switch is set to SAFE and back to ARM.

14. SIM mode is deselected by pressing the SIM mode option pushbutton switch on the stores display when SIM legend is boxed.

15. SIM mode is automatically deselected on power up with weight on wheels, when landing gear are lowered, when MUX communication is lost, or when MC 2 fails.

16. **AIRCRAFT MASTER MODE.** When SIM mode is deselected, either automatically or manually, the SMS will transition to NAV master mode.

17. When SIM mode has been deselected A/G and A/A master modes can be selected using the A/G and A/A light switch assembly (light switch assembly). The light switch assembly is on the master arm control panel assembly. On F/A-18B, the rear cockpit light switch assembly is on the master mode select panel assembly.

18. SIM mode is selectable on the ground, when all gear is down and locked and aircraft master mode is A/G.

19. **WEAPON SELECT.** A/A and A/G weapon select operates normally in simulation mode. The aircraft master mode must be set to A/A or A/G, SIM mode selected on stores display and weapon selected on stores display or aircraft controller grip assembly.

20. **Weapon Select - AIM-7 Sparrow SIM Mode.** The armament computer logic bypasses the AIM-7 Ident and missile tune status. The priority station is not sent to the MC system for display. AIM-7M is initially selected for computations and display.

21. **Weapon Select - AIM-9 Sidewinder SIM Mode.** AIM-9 Ident is required for SIM mode operation. Priority station is selected and displayed but will not step to next priority station after weapon release. Priority station can be stepped by selecting AIM-9 on GUN/A/A weapon select switch on aircraft controller stick grip assembly.

22. **Weapon Select - AIM-120 AMRAAM SIM Mode - AFTER AFC 253 OR 292.** The armament computer logic bypasses the AIM-120 Ident. The priority station is not sent to the MC system for display.

23. **Weapon Select - A/G Weapons SIM Mode.** With A/G ready logic sent to MC system in SIM mode, normal tactical logic will be processed.

24. **STORES INVENTORY.** On transition out of SIM mode, the SMS will do an inventory and report the actual weapon load and status to the MC system. The load is displayed when STORES is selected on the LDDI. The status will be displayed when A/A or A/G aircraft master mode is selected and a weapon selected.

25. **WEAPON RELEASE.** A/G weapon release signal is sent to MC system for A/G weapons. Trigger (detent 2) signal is sent to the MC system for A/A weapons. AIM-7 sparrow launch initiate 2 is sent to countermeasures system. AIM-7 sparrow launch initiate A and B are sent to the radar system.

26. The SMS inhibits all weapon release signals to stores when SIM mode is selected. Simulated launches will not change weapon or store count. Except for emergency jettison, no weapon or stores can be released, launched or jettisoned in SIM mode.

27. A/G ready logic uses SIM mode input instead of master arm set to ARM to simulate A/G ready condition. The RDY display on stores display appears the same as for normal weapon delivery.

28. **LAUNCHER/RACK LOCK/UNLOCK.** All racks will be locked while in SIM mode and locked status is displayed on stores display. Deselecting SIM mode returns lock/unlock status of the racks to existing logic. Racks will unlock when A/A or A/G master mode is selected.

29. **BUILT-IN TEST.** When transitioning out of SIM mode normal periodic built-in test (BIT) is automatically done every 60 seconds.

30. **VIDEO SWITCHING.** Simulation mode enables armament computer switching relays to output the store video to the selected DDI for display. For HARM, SLAM, Maverick, Data Link Pod, FLIR or LDT video, the actual weapon or pod must be installed on the aircraft to provide the necessary weapon video feedback.

31. **AIM-7 SPARROW.** When SIM mode is selected, the SMS will simulate the presence of a Sparrow missile on each Sparrow station and display 7M on the DDI stores wingform/display. When actual missiles are installed the correct missile type and count will be displayed.

32. The sparrow weapon type will always be displayed on the HUD and Radar display as 7M regardless of the load of 7F or 7M on stores display as shown in figure 1. When sparrow is selected, there will be no station selected.

33. A SIM mode cue will not be provided on the HUD but all attack symbology with SHOOT cue, pre and post launch missile time of flight, pull-up cue and breakaway - X will be displayed. Shoot light is also operational in SIM mode.

34. During SIM mode, the SMS will inhibit all fire signals to the sparrow. Simulated launches will result in no weapon or stores count change. Sparrow launches will be simulated even with a zero weapon count.

35. **AIM-9 SIDEWINDER.** For sidewinder simulation operation, an actual weapon must be loaded to provide the necessary weapon feedback. A SEL will be displayed under the selected sidewinder, but station select will not step after simulated launch.

36. If two or more sidewinders are loaded, station select will step with each activation of the gun/A/A weapon select switch on aircraft controller stick grip assembly.

37. A SIM mode cue will not be provided on the HUD, but all attack symbology with SHOOT cue, pull-up cue, and breakaway - X will be displayed. Shoot light is also operational in SIM mode.

38. The actual count of sidewinders will be displayed on the HUD and radar display when selected on the stores display.

39. **AIM-120 AMRAAM - AFTER AFC 253 OR 292.** An AMRAAM missile does not have to be loaded for SIM mode operation. When SIM mode is selected, the SMS will simulate the presence of a AMRAAM missile on each AMRAAM station and display AMRAAM missile type on the DDI stores wingform/display. When actual missiles are installed the correct missile count will be displayed.

40. When SIM is selected AB will be displayed on the HUD and Radar display. When AMRAAM is selected, there will be no station selected.

41. A SIM mode cue will not be provided on the HUD but all attack symbology with SHOOT cue, pre and post launch missile time of flight, pull-up cue and breakaway - X will be displayed. Shoot light is also operational in SIM mode.

42. During SIM mode, the SMS will inhibit all fire signals to the AMRAAM. Simulated launches will result in no weapon or stores count change. AMRAAM launches will be simulated even with a zero weapon count.

43. **GUN/ROCKETS.** When Gun or Rockets are selected in simulation mode, operation is normal except gun/rocket firing is inhibited. Master arm, rockets on board, and rounds/rockets remaining are not required for attack symbology or shoot cue.

44. **BOMB/MINES.** Bomb/mine simulation mode is available with or without bombs/mines on board. With no bombs/mines on board the racks must be closed to produce a store aboard ID. With simulation mode selected bomb/mine operation functions as normal with all weapon release signals except emergency jettison inhibited.

45. **BOMB/MINES PROGRAMMING.** Bomb/Mines programming operation is normal in simulation mode.

46. **AGM-88 HARM.** For HARM simulation mode operation, a HARM must be loaded on the aircraft. With HARM loaded, operation is normal except launch is inhibited.

47. **AGM-65 MAVERICK.** For Maverick simulation mode operation, a Maverick must be loaded on the aircraft. With Maverick loaded, operation is normal except launch is inhibited.

48. **AGM-84 HARPOON.** For Harpoon simulation mode operation, a Harpoon must be loaded on the aircraft. With Harpoon loaded, operation is normal except launch is inhibited.

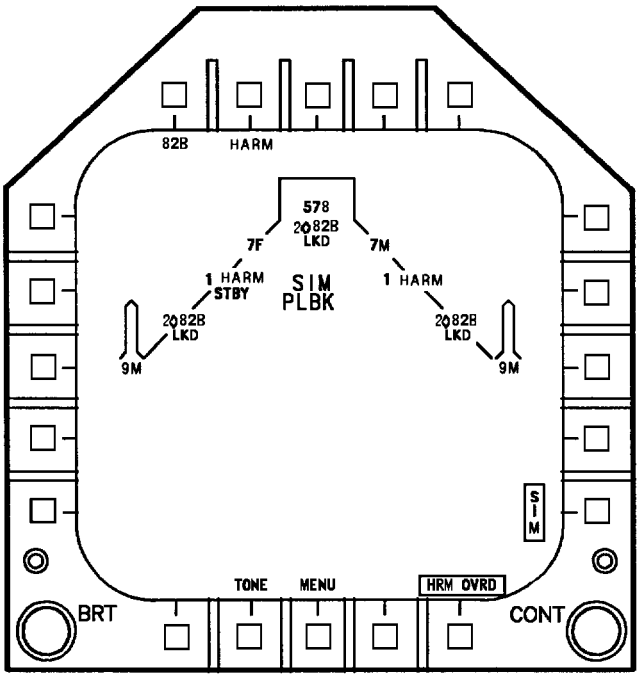
49. **AGM-45 SHRIKE.** For Shrike simulation mode operation, a shrike must be loaded on the aircraft. With Shrike loaded, operation is normal except launch is inhibited.

50. **WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM.** For SLAM simulation mode operation, a SLAM must be loaded on the aircraft. With SLAM loaded, operation is normal except launch is inhibited.

51. **TONE OPERATION.** No audio weapon release tone is provided in simulation mode.

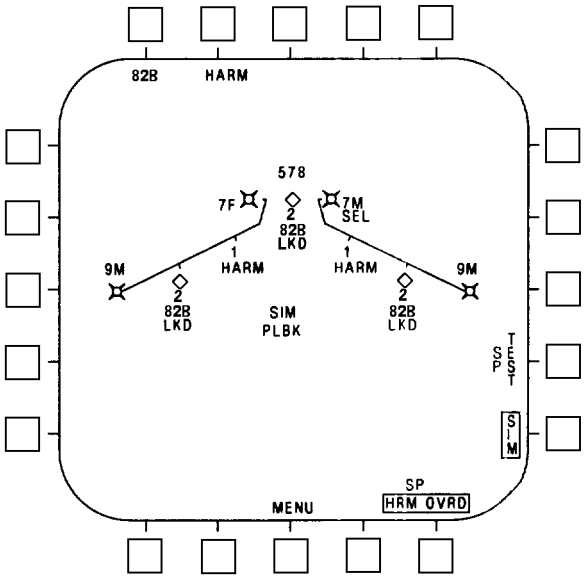
52. **SELECTIVE JETTISON/AUXILIARY RELEASE.** Selective Jettison/Auxiliary release is inhibited in simulation.

53. **EMERGENCY JETTISON.** Emergency Jettison operation is normal in simulation mode.



SIM MODE
(AIR TO AIR)

[1] STORES DISPLAY – SPARROW SELECTED, PULLBACK OVERRIDE SELECTED

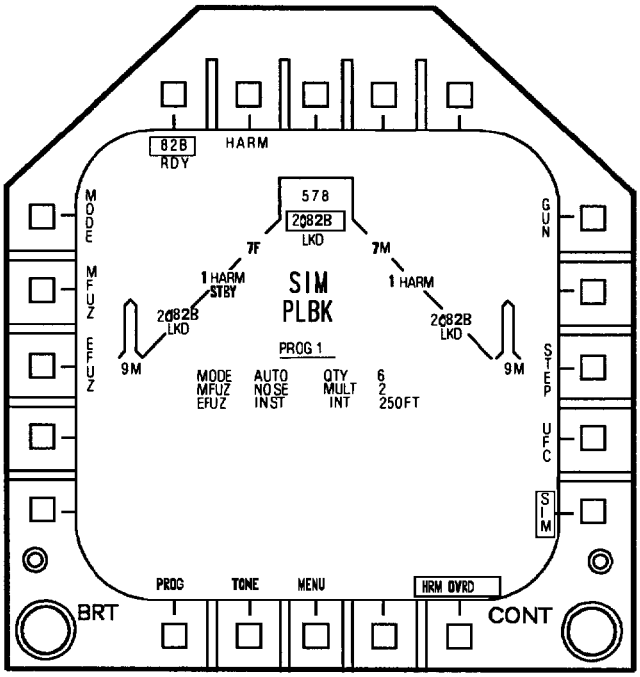


SIM MODE
(AIR TO AIR)

[2] STORES DISPLAY – SPARROW SELECTED, PULLBACK OVERRIDE SELECTED

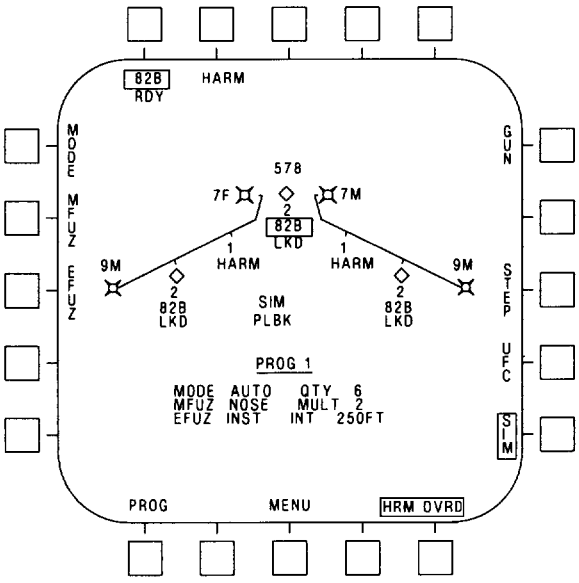
26010101

Figure 1. Simulation Mode (Sheet 1)



SIM MODE
(AIR TO GROUND)

1 STORES DISPLAY – BOMB SELECTED

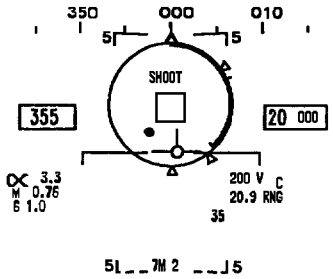


SIM MODE
(AIR TO GROUND)

2 STORES DISPLAY – BOMB SELECTED

26010102

Figure 1. Simulation Mode (Sheet 2)



HUD SIM MODE DISPLAY
(TYPICAL)
(SPARROW NORMALIZED IN RANGE DISPLAY)

LEGEND

1 161353 THRU 163175 BEFORE AFC 253 OR AFC 292.

2 161353 THRU 163175 AFTER AFC 253 OR AFC 292.

26010103

Figure 1. Simulation Mode (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - SIMULATION MODE SELECT SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

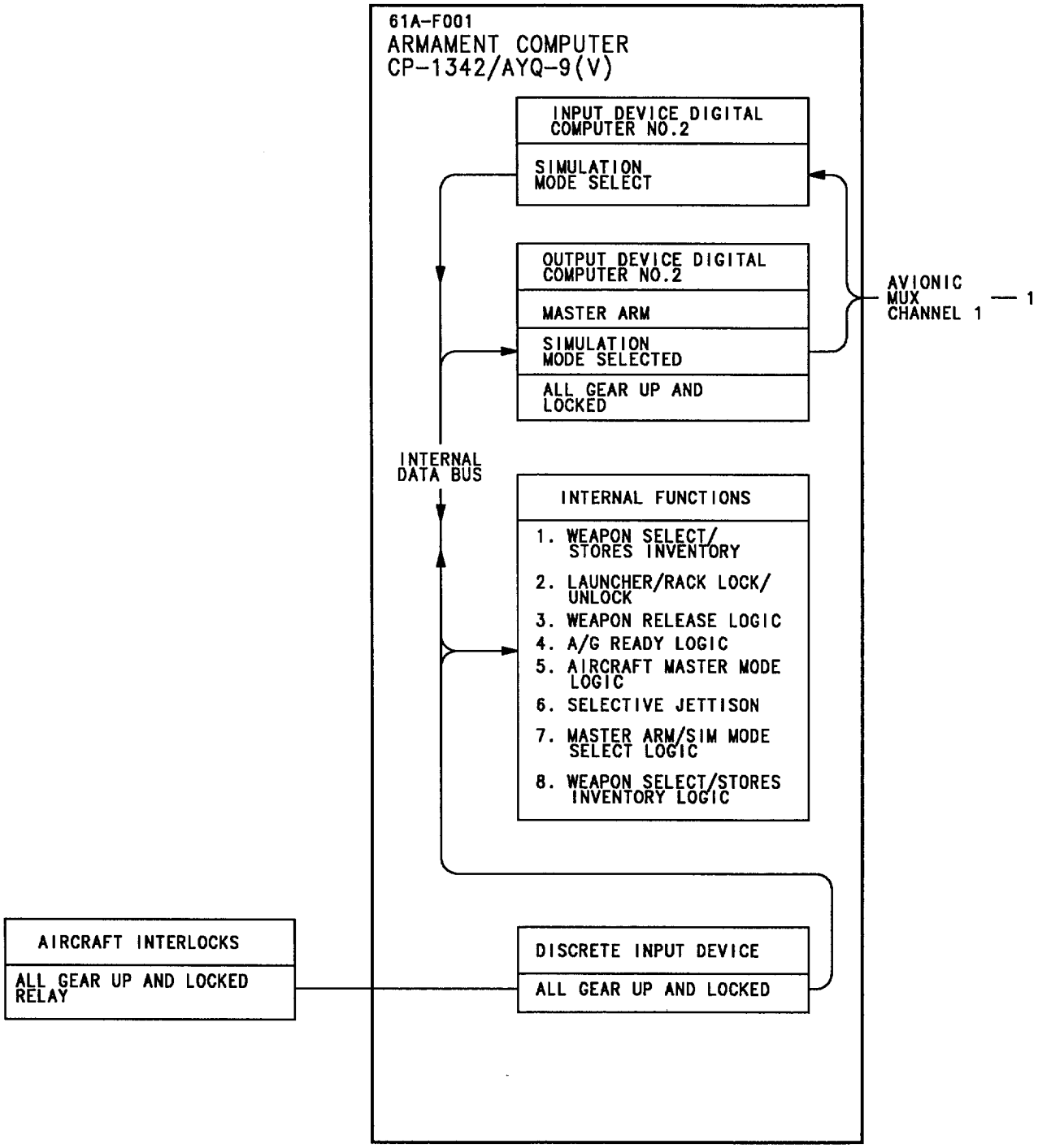
Subject	Page No.
Introduction	1
Simulation Mode Select Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

None

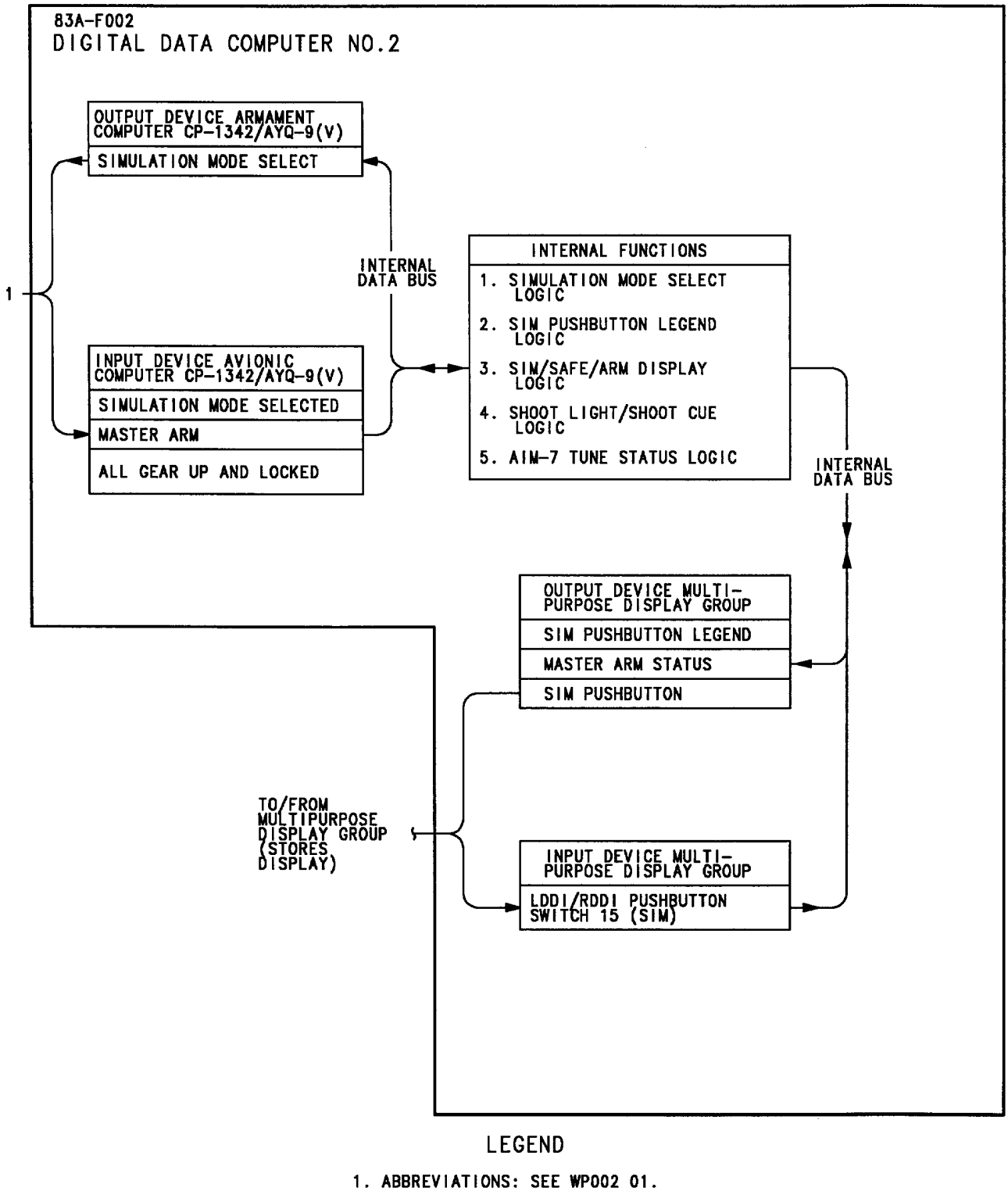
1. INTRODUCTION.

2. The simplified schematic in this work package provides support for the data in WP026 01.



26020101

Figure 1. Simulation Mode Select Simplified Schematic (Sheet 1)



26020102

Figure 1. Simulation Mode Select Simplified Schematic (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - AIR TO GROUND WEAPON RELEASE TONE

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Air To Ground Weapon Release Tone Simplified Schematic WP026 04
Weapon Control System A1-F18AC-740-500
Air To Ground Weapon Release Tone Schematic WP012 00

Alphabetical Index

Subject	Page No.
Air To Ground Weapon Release Tone Display, Figure 1	4
Air To Ground Weapon Release Tone Operation	2
Armament Computer Functions	2
Control Converter C-10382/A	3
Displays	3
Electronic Equipment Control C-10380/ASQ	3
Intercommunication Amplifier-Control AM-6979/A or AM-7360/A or, AFTER AFC 253 or AFC 292, AM-7539/A	3
Introduction	1
Mission Computer System Functions	2
VHF/UHF Receiver - Transmitter No. 1 and No. 2	3

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	–

1. INTRODUCTION.

2. Stores Management System (SMS) air-to-ground weapon release tone is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP026 04 for air to ground weapon release tone operation simplified schematic. The simplified schematic shows the interface between the Armament Computer CP-1342/AYQ-9(V), mission computer (MC) system, VHF/UHF communication system and intercommunication system.

4. The simplified schematic lists armament computer and MC system functions used for air to ground (A/G) weapon release tone operation. Air To Ground Weapon Release Tone Schematic (A1-F18AC-740-500, WP012 00) shows detail operation.

5. Figure 1 shows air to ground weapon release tone select display. Refer to WP014 00 for component locations.

6. AIR TO GROUND WEAPON RELEASE TONE OPERATION.

7. Air to ground weapon release tone option is used to enable COMM transmit tone when required for weapon release at air to ground practice ranges. COMM transmit tone is produced in VHF/UHF receiver-transmitter No. 1 or VHF/UHF receiver-transmitter No. 2 (receiver-transmitter no. 1 or receiver-transmitter no. 2).

8. Air to ground weapon release tone operation in this work package is listed below:

a. armament computer functions

b. mission computer system functions

c. displays

d. Electronic Equipment Control C-10380/ASQ

e. Control Converter C-10382/A

f. VHF/UHF Receiver-Transmitter No. 1 and No. 2

g. Intercommunication Amplifier-Control AM-6979/A or AM-7360/A or, after AFC 253 or AFC 292, AM-7539/A

9. **ARMAMENT COMPUTER FUNCTIONS.** The arm, armament override, A/G select, LMG WOW relay no. 2 and A/G weapon release discrete signals are sent to the armament computer for release and testing logic.

10. The safe/arm, aircraft master mode, weapon release, selected weapon code and weapon delivery mode signals are sent to the MC system.

11. Simulation (SIM) mode is provided, and when selected, is sent to the MC system.

12. **Aircraft Master Mode.** Aircraft master mode must be in A/G mode to enable air to ground weapon release tone.

13. A/G master mode is selected by pressing A/G light switch on the Master arm control panel assembly.

14. A/G master mode is deselected by pressing A/G light switch when A/G light is on. A/G master mode is automatically deselected when NAV mode select is being received from the MC system.

15. A/G master mode is automatically deselected and NAV mode selected when simulation mode is deselected.

16. **Master Arm.** The armament computer must be sending the master arm command to the mission computer system to enable air to ground weapon release tone.

17. The armament computer sends master arm command to the mission computer when master arm switch is set to ARM and either weight off wheels or armament safety override exists.

18. Master arm (ARM command) is inhibited when SIM mode is selected.

19. **Weapon Select.** Air to ground weapon release tone option exists when A/G master mode is selected and any A/G weapon except gun is selected.

20. **Stores Inventory.** The weapon delivery mode option is stored in the armament computer stores inventory memory until selected on the stores display. The weapon delivery modes of auto, loft, CCIP or manual are stored with the applicable selected weapon.

21. **MISSION COMPUTER SYSTEM FUNCTIONS.** The mission computer system sends COMM 1 or COMM 2 command to the VHF/UHF communications system when TONE is selected on stores display and weapon release logic is satisfied.

22. TONE option is available for all weapons except gun. When CCIP or manual mode is selected and rockets, bombs, mines, maverick, harpoon or HARM is selected, the weapon release tone will be transmitted for 0.5 seconds or the length of weapon release switch depression, whichever is longer.

23. If a computed release mode, such as AUTO, flight director (FD), or HARM PB, is selected, the weapon release tone is transmitted when weapon release is closed. The tone is transmitted until the MC system sends the first release command to the armament computer. If a ripple conventional weapon release is being done, tone is transmitted until the first release command in the sequence is issued.

24. Tone operation is set to the deselected state at power-up with weight on wheels.

25. When in A/G master mode all A/A and A/G data messages are updated to the Signal Data Recorder RO-508/ASM-612 at end of tone timing signal produced in MC system.

26. **DISPLAYS.** TONE option is displayed on stores display when A/G aircraft master mode is selected and any weapon except gun is selected. TONE legend is not boxed until TONE is selected.

27. TONE option is not available when SIM mode selected.

28. When TONE pushbutton is first pressed, TONE changes to TONE 1 with a box around it to indicate that receiver-transmitter no. 1 is enabled for transmitting the tone at weapon release.

29. When TONE pushbutton is pressed with TONE 1 displayed, TONE 2 will be displayed with a box around it to indicate that receiver-transmitter no. 2 is enabled for transmitting the tone at weapon release.

30. When TONE pushbutton is pressed with TONE 2 displayed, the unboxed TONE legend is displayed to indicate that the air to ground weapon release tone has been disabled.

31. **ELECTRONIC EQUIPMENT CONTROL C-10380/ASQ.** The VHF/UHF communication system transmits tone and provides output to intercommunications and audio tone system. COMM 1 or COMM 2 controls on the electronic equipment control must be turned on to enable the VHF/UHF communications system.

32. The electronic equipment control COMM 1 or COMM 2 controls also control the volume of the air to ground weapon release tone to pilot/instructor headsets. COMM 1 is shown in A1-F18AC-600-500, WP005 00 and COMM 2 is shown in A1-F18AC-600-500, WP006 00.

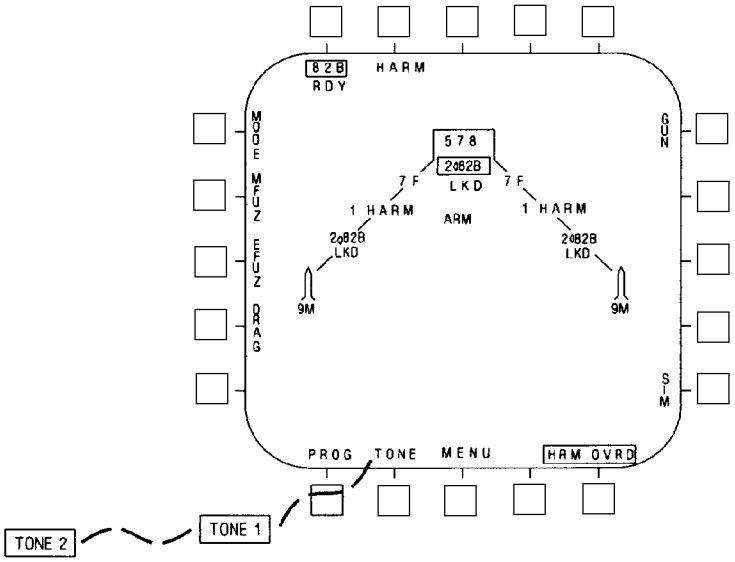
33. **CONTROL CONVERTER C-10382/A.** The control converter receives COMM 1 or COMM 2 command signals from the MC system. The COMM 1 or COMM 2 signal is processed through the digital to discrete converter and sent to the VHF/UHF communications system transmitters.

34. **VHF/UHF RECEIVER-TRANSMITTER NO. 1 AND NO. 2.** A/G weapon release tone transmission is enabled by COMM 1 and COMM 2 discrete signals from the control-converter.

35. **VHF/UHF Receiver-Transmitter No. 1.** COMM 1 discrete signal enables the 1020 Hz AM tone generator and turns on the transmitter for the duration of the A/G weapon release tone.

36. **VHF/UHF Receiver-Transmitter No. 2.** COMM 2 discrete signal enables the 1020 Hz AM tone generator and turns on the transmitter for the duration of the A/G weapon release tone.

37. **INTERCOMMUNICATION AMPLIFIER-CONTROL AM-6979/A or AM-7360/A or, AFTER AFC 253 or AFC 292, AM-7539/A.** The intercommunication amplifier control receives the COMM 1 and COMM 2 signals from the applicable receiver-transmitters. The COMM 1 or COMM 2 signal is selected and routed through the pilot and instructor auto volume control circuits, amplified and sent to the pilot and instructor headsets.

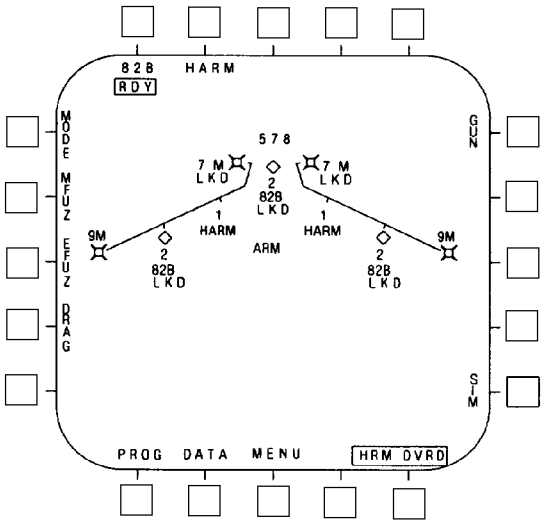


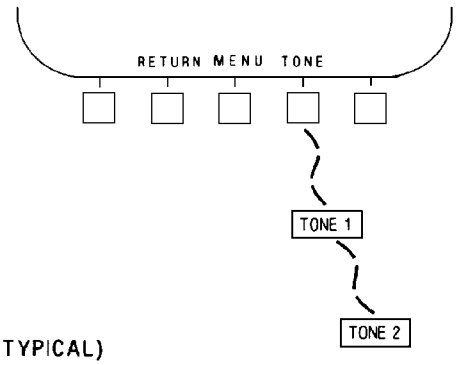
1 STORES DISPLAY (TYPICAL)

LEGEND

1 161353 THRU 163175 BEFORE AFC 253 OR AFC 292.

2 161353 THRU 163175 AFTER AFC 253 OR AFC 292.





2 STORES DISPLAY (TYPICAL)

02603001

Figure 1. Air To Ground Weapon Release TONE Display

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - AIR TO GROUND WEAPON RELEASE TONE SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

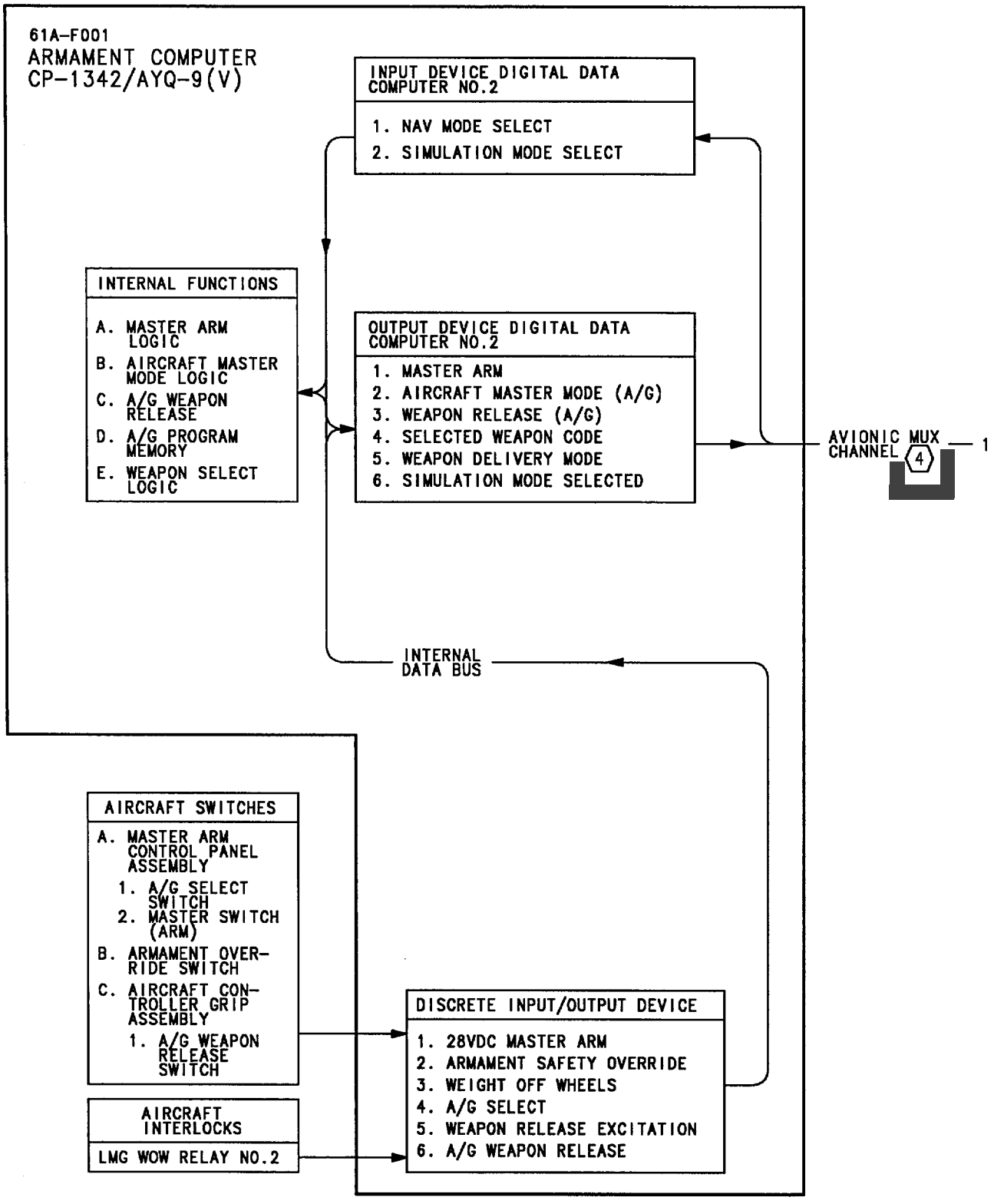
Subject	Page No.
Introduction	1
Air To Ground Weapon Release Tone Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

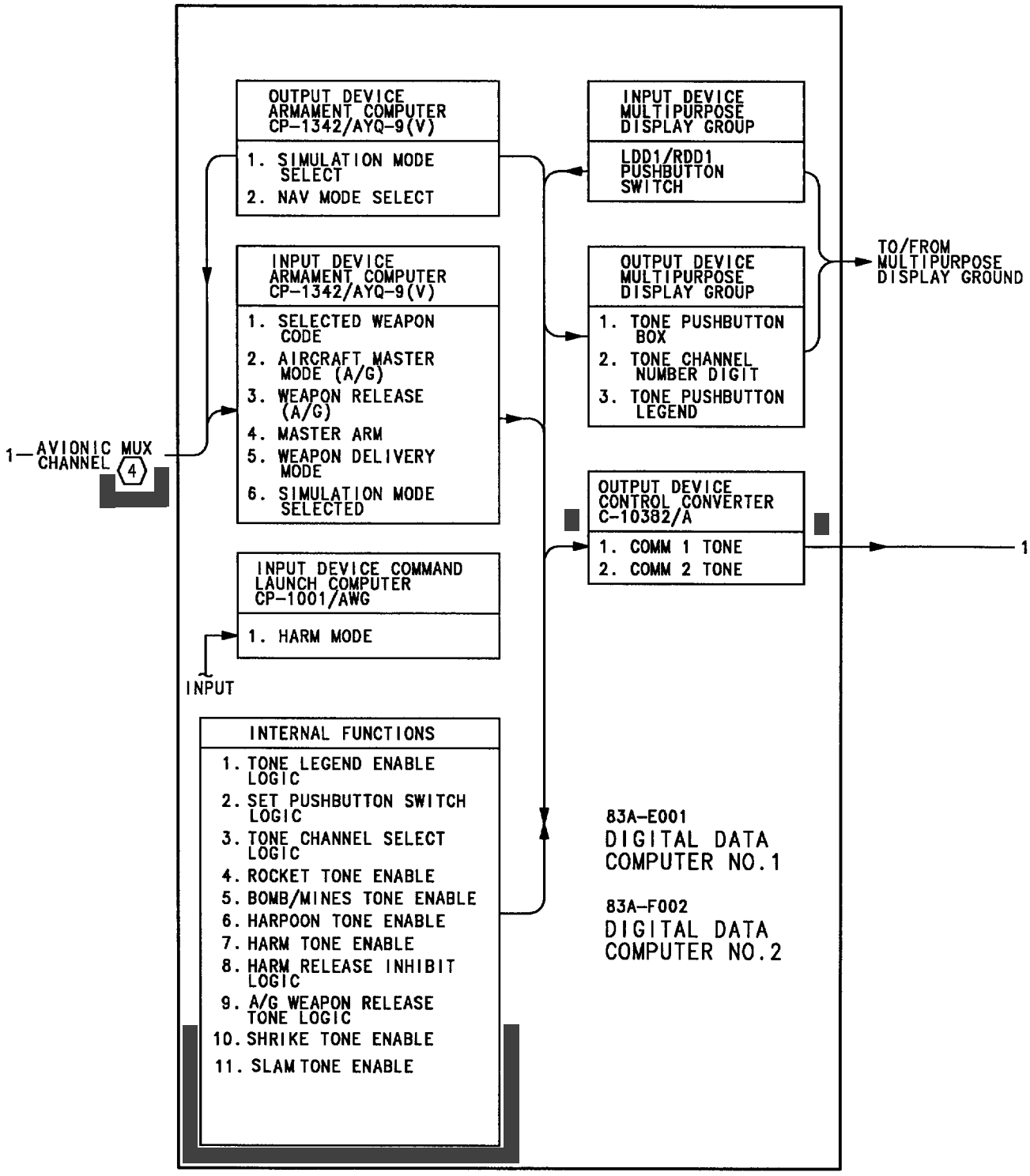
1. INTRODUCTION.

2. The schematic in this work package provides support for the data in WP026 03.



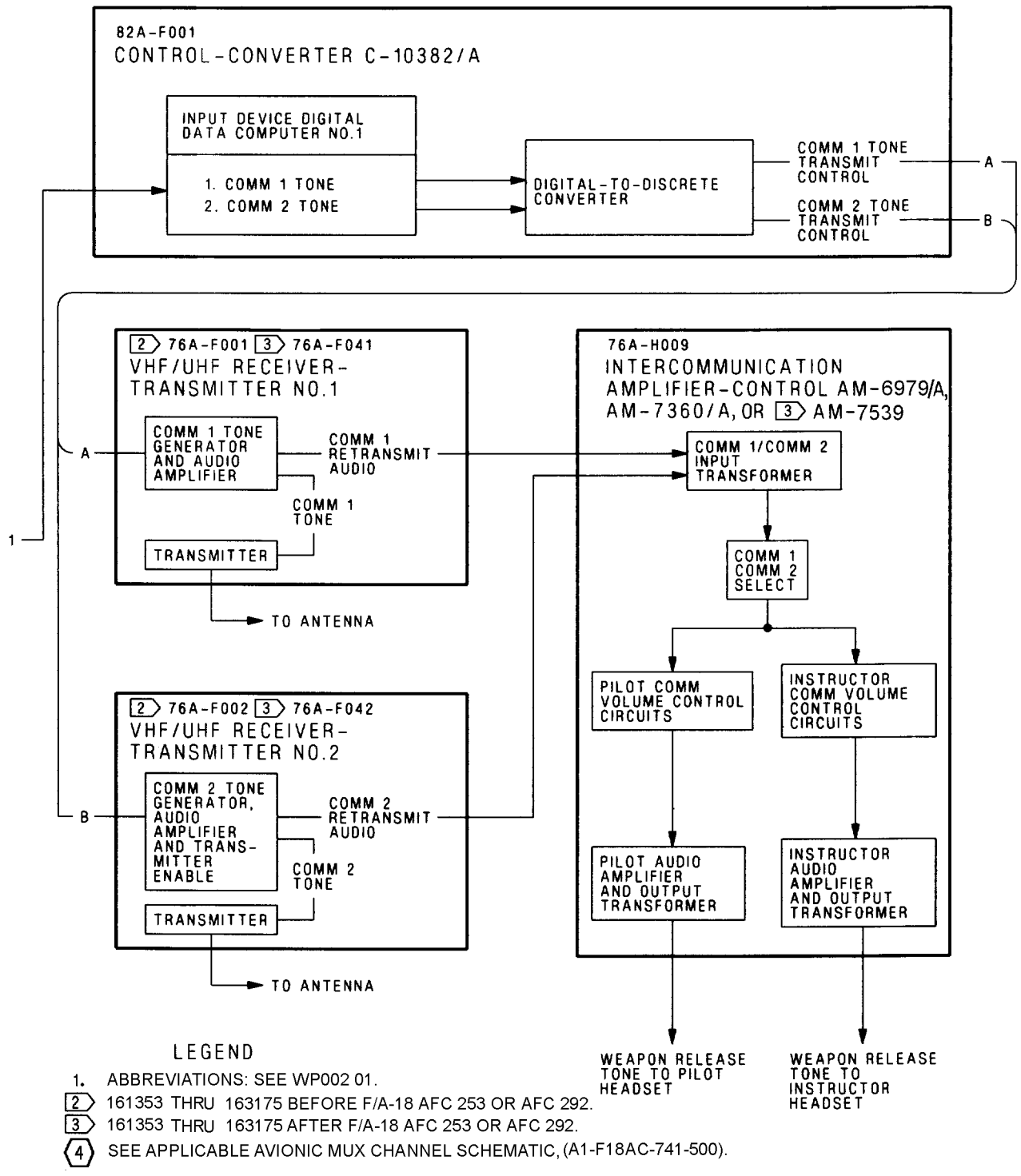
26040101

Figure 1. Air To Ground Weapon Release Tone Simplified Schematic (Sheet 1)



26040102

Figure 1. Air To Ground Weapon Release Tone Simplified Schematic (Sheet 2)



LEGEND

1. ABBREVIATIONS: SEE WP002 01.
2. 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.
3. 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.
4. SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

26040103

Figure 1. Air To Ground Weapon Release Tone Simplified Schematic (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - EMERGENCY JETTISON

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Emergency Jettison Simplified Schematic WP028 00
Weapon Control System A1-F18AC-740-500
Emergency Jettison Schematic WP018 00

Alphabetical Index

Subject	Page No.
Armament Computer Functions	2
Emergency Jettison Enable	2
Emergency Jettison Operation	2
Introduction	2
Power	2
Priority Release Sequence	3
Release Signals	3
Simulation Mode	3

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) emergency jettison operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP028 00 for the emergency jettison simplified schematic. The simplified schematic shows emergency jettison function for the right wing outboard pylon and the centerline pylon weapon stations. Emergency jettison circuit operation is similar for all pylon stations. The right wing outboard pylon weapon station operation is discussed. The only difference between pylon station operation is the priority release sequence delay logic in the weapon station command signal encoder-decoder. Those differences between pylon circuits are described with priority release sequence.

4. Refer to WP014 00 for component locations.

5. Emergency Jettison Schematic (A1-F18AC-740-500, WP018 00) shows detail operation.

6. EMERGENCY JETTISON OPERATION.

7. The SMS can emergency jettison stores attached to the Aircraft Bomb Ejector Racks BRU-32( ) on the five pylon weapon stations. Pressing the EMERG JETT switch on the master arm control panel assembly enables lock override and fire 1 and fire 2 signals to the BRU-32. On F/A-18B, pressing the EMERG JETT switch on the EMERG JETT panel assembly also enables the lock override and fire 1 and fire 2 signals to the BRU-32.

8. Emergency jettison operation in this work package is listed below:

a. power

b. emergency jettison enable

c. armament computer functions

d. priority release sequence

e. release signals

f. simulation mode

9. **POWER.** Essential 24/28vdc power from the no. 5 circuit breaker panel supplies power for the emergency jettison circuits. The circuits for emergency jettison in the armament computer and pylon weapon station command signal encoder-decoders are isolated from any power requirement other than essential 24/28vdc.

10. Isolation of emergency jettison functions enables these circuits to operate when the SMS is off, failed, or when the aircraft is on battery power.

11. During ground operation, GND PWR 3 switch is set to B ON to enable essential 24/28vdc to the armament computer. The armament computer regulates this power input at 12 and 24/28vdc.

12. Essential 24/28vdc is applied to the pylon weapon station encoder-decoders when power is on the aircraft. The encoder-decoders regulate the input power at 12, 11.4 and 24/28vdc.

13. **EMERGENCY JETTISON ENABLE.** The 2.2 kHz oscillator in the armament computer produces the EMERG JETT switch excitation. The oscillator is enabled when the landing gear handle is up or the right main landing gear has weight off wheels.

14. **ARMAMENT COMPUTER FUNCTIONS.** When emergency jettison enable exists, the 2.2 kHz oscillator is turned on and the oscillator signal is sent to the digital coding circuit. The output of the digital coding circuit is 2 out of phase digital coded pulses that are amplified and sent to the EMERG JETT switch. One output is also sent to the command signal encoder-decoder as emergency jettison no. 2.

15. Emergency jettison no. 1 is an output of the switch comparator. When the EMERG JETT switch, or on F/A-18B the rear EMERG JETT switch is pressed, the inputs to the comparator are inverted and the computer outputs the emergency jettison no. 1 signal out of phase with emergency jettison no. 2.

16. Store inventory is done 0.3 seconds (1 second for aircraft AFTER AFC 253 OR 292) seconds after each emergency jettison input. If store aboard or weapon ID is present the station status is updated to hung. If store aboard or weapon ID does not exist the station status is updated togone. Stations, 1, 4, 6 and 9 keep their previous status.

17. **Built-In Test (BIT).** During SMS power up, the digital coding circuit and the switch signals are sent to a BIT comparator. The BIT comparator uses the two inputs to monitor the off (not pressed) status of the EMERG JETT switches. If the switch circuit is bad, the BIT circuit outputs the fail status to the mission computer system. The status will set system maintenance code 82.

18. **PRIORITY RELEASE SEQUENCE.** The emergency jettison priority release sequence of stores from the pylon weapon stations is listed below:

a. outboard stations 2 and 8

b. inboard stations 3 and 7

c. centerline station 5

19. The release sequence is controlled by the input to the priority release sequence delay logic circuit in the encoder-decoder. Station 2 and 8 have an outboard pylon ident discrete ground input circuit. The inboard pylon circuits are not connected. The centerline encoder-decoder input is controlled by a voltage divider network.

20. **RELEASE SIGNALS.** To emergency jettison stores on a pylon, lock override and fire 1 and 2 must be sent to the BRU-32. The relay control in the encoder-decoder must receive emergency jettison 1 and 2 out of phase from the armament computer in order to produce outputs.

21. The relay control enables emergency jettison relay A10K7 to be energized. When A10K7 energizes, 24/28vdc is used to disable the normal release relays A10K1, A10K2, and A10K6. Relay A10K7 also provides 24/28vdc lock override to the override solenoid in the BRU-32 rack. This signal commands unlocking of the BRU-32 if it was not previously unlocked.

22. When the relay driver for emergency jettison fire relay A10K8 receives the unlock monitor (ground) from the BRU-32, A10K8 energizes. This enables 24/28vdc from the energized contacts of A10K7 to be sent to the wing pylon relay box assembly. The 24/28vdc is hard wired through the wing pylon relay box assembly to bypass the release consent relays and is sent to the BRU-32 as fire 1 and fire 2 signals. Fire 1 and fire 2 cause the explosive charges in the BRU-32 to explode and release the store.

23. **SIMULATION MODE.** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. Normal emergency jettison release can be done in simulation mode.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - EMERGENCY JETTISON SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

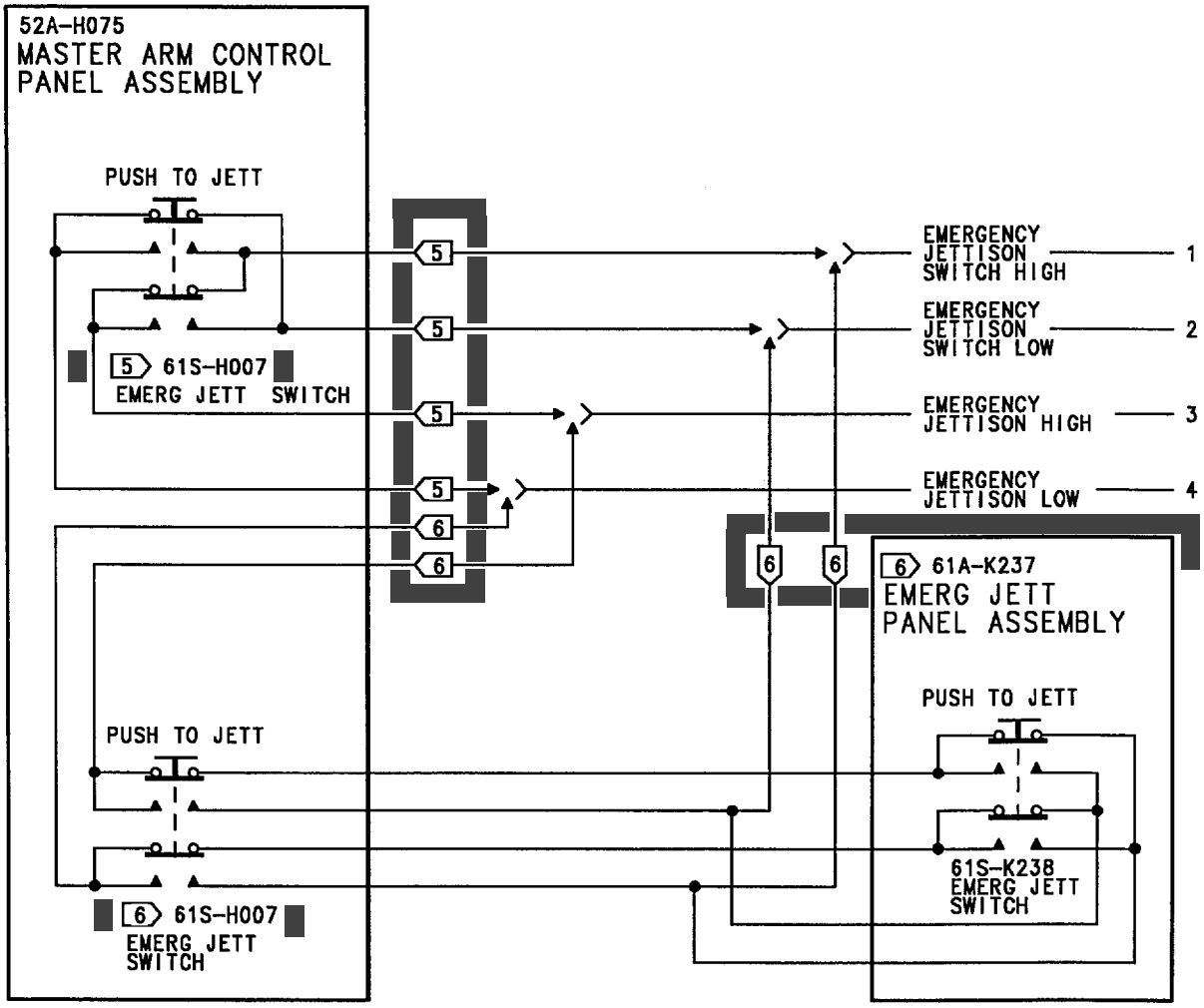
Subject	Page No.
Emergency Jettison Simplified Schematic, Figure 1	2
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 48	-	Automatic AC Bus Isolation, Incorporation Of (ECP-MDA-F/A-18-00121)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

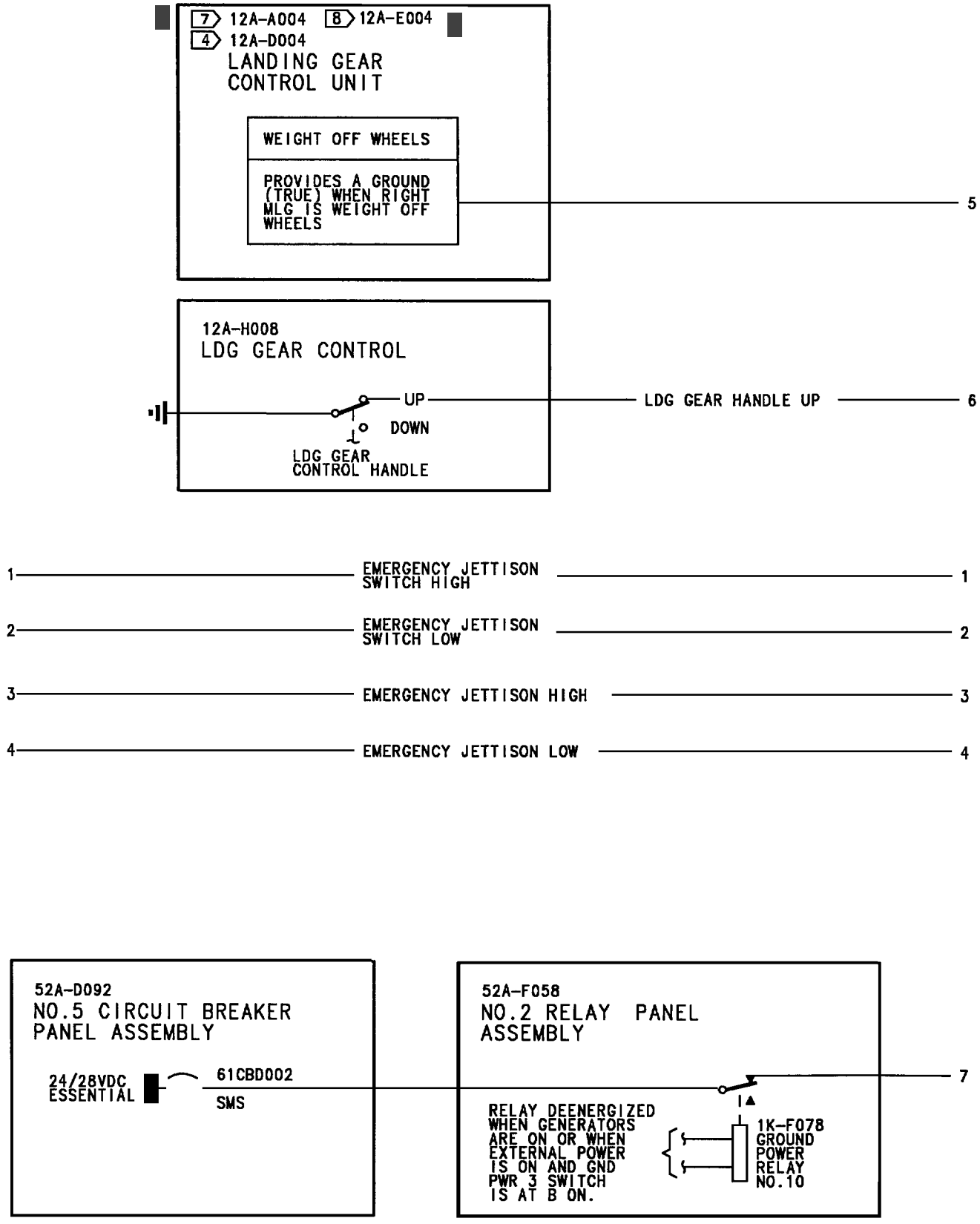
1. INTRODUCTION.

2. The schematic in this work package provides supports the data in WP027 00.



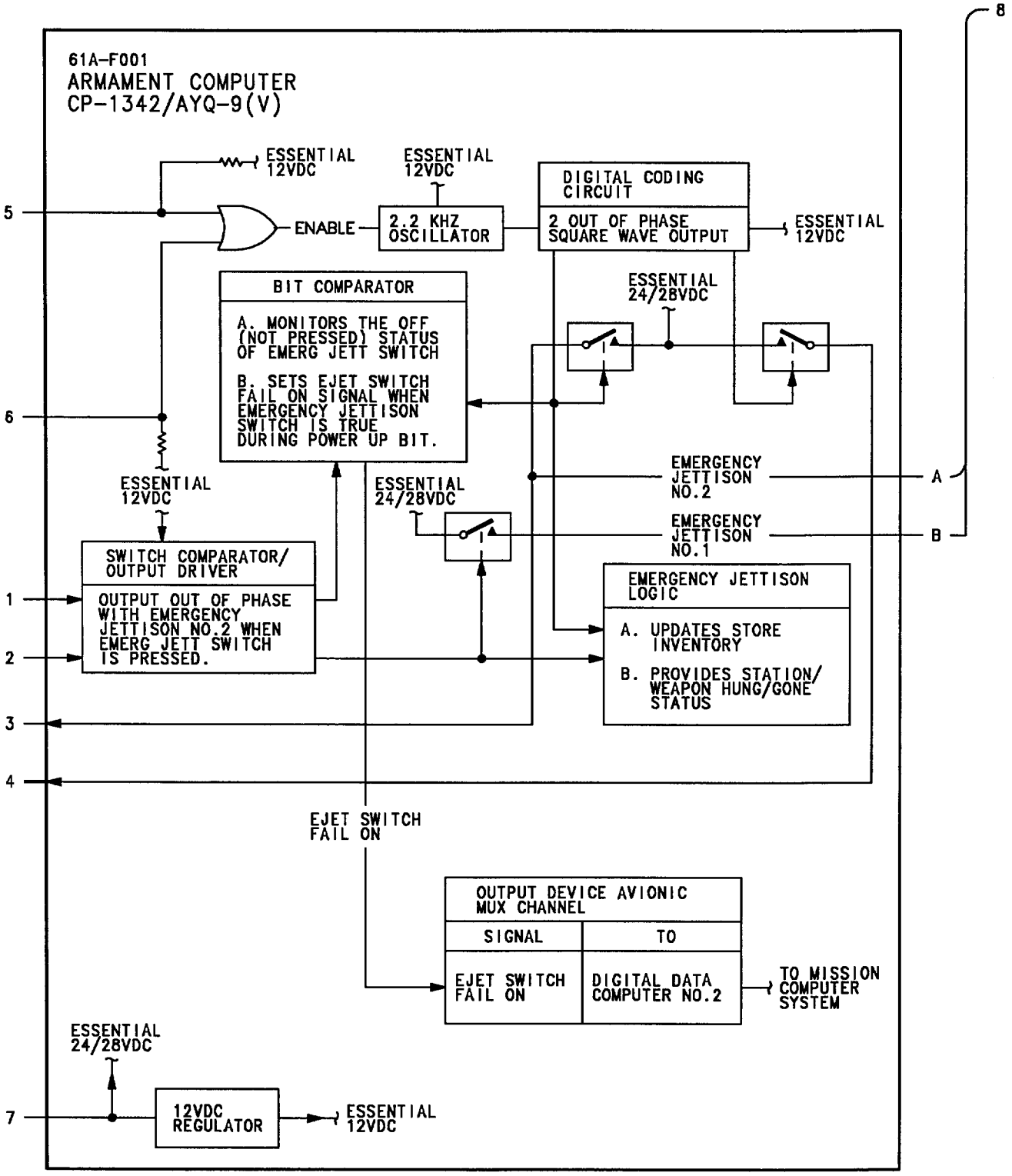
02800101

Figure 1. Emergency Jettison Simplified Schematic (Sheet 1)



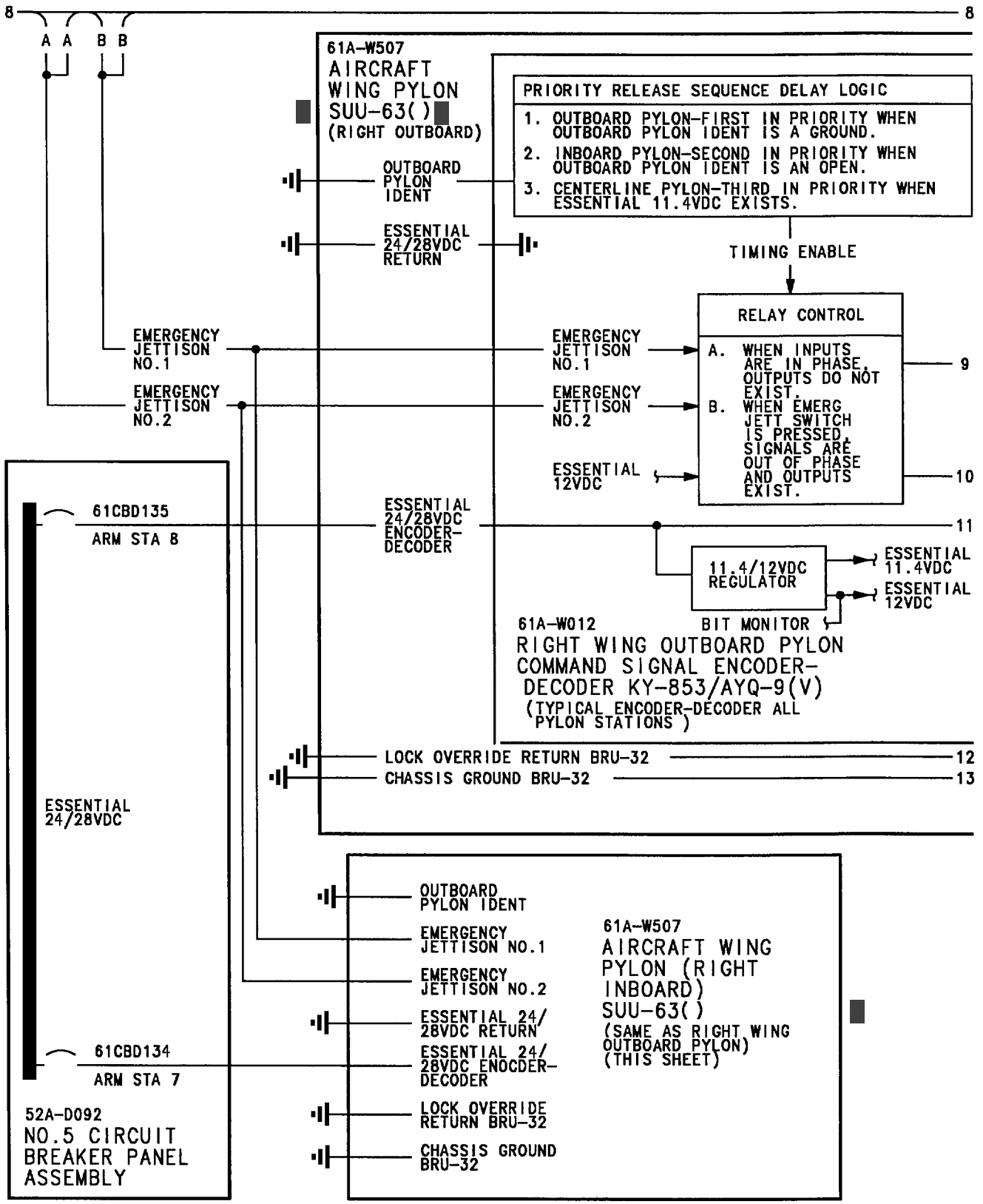
02800102

Figure 1. Emergency Jettison Simplified Schematic (Sheet 2)



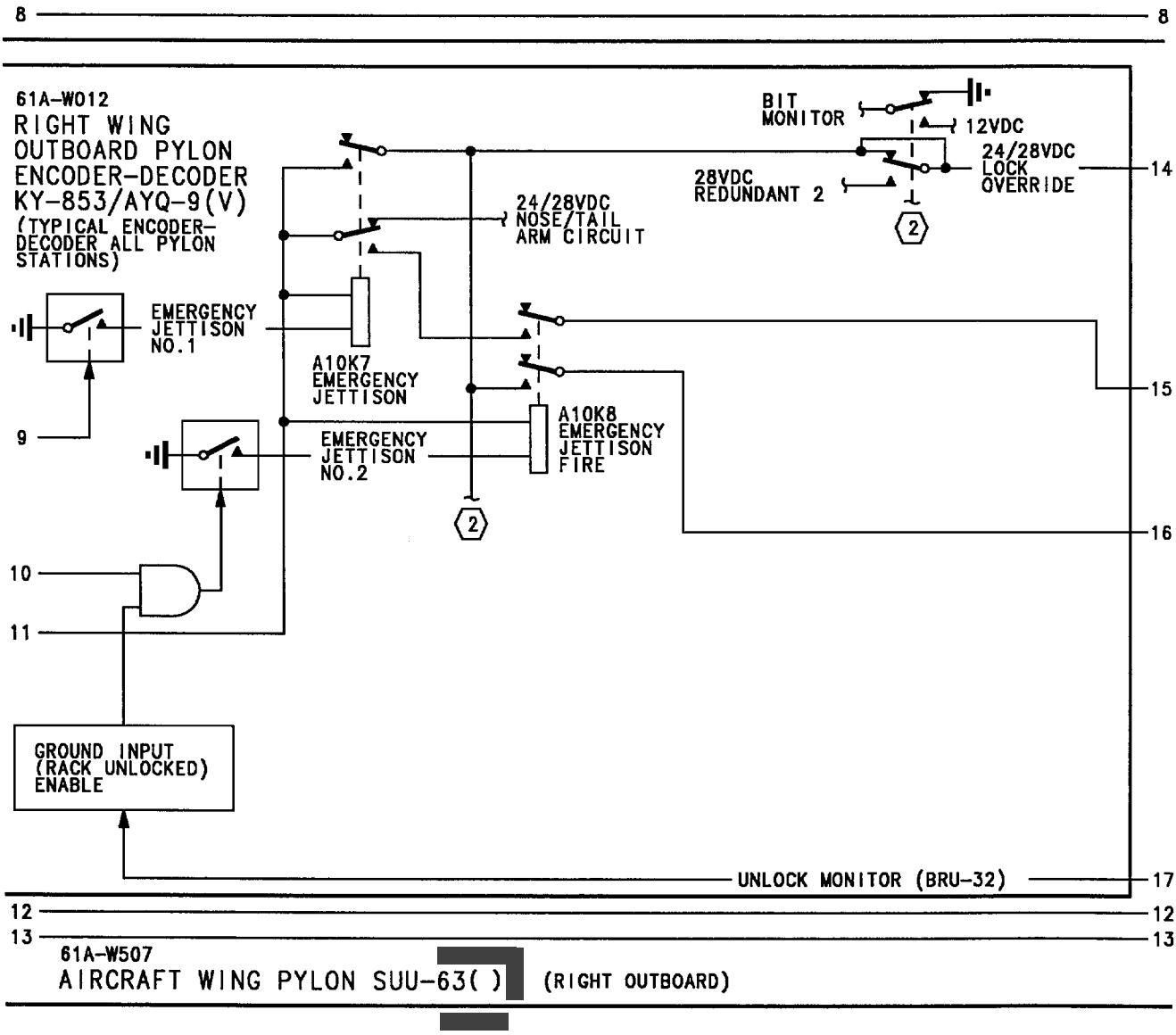
02800103

Figure 1. Emergency Jettison Simplified Schematic (Sheet 3)



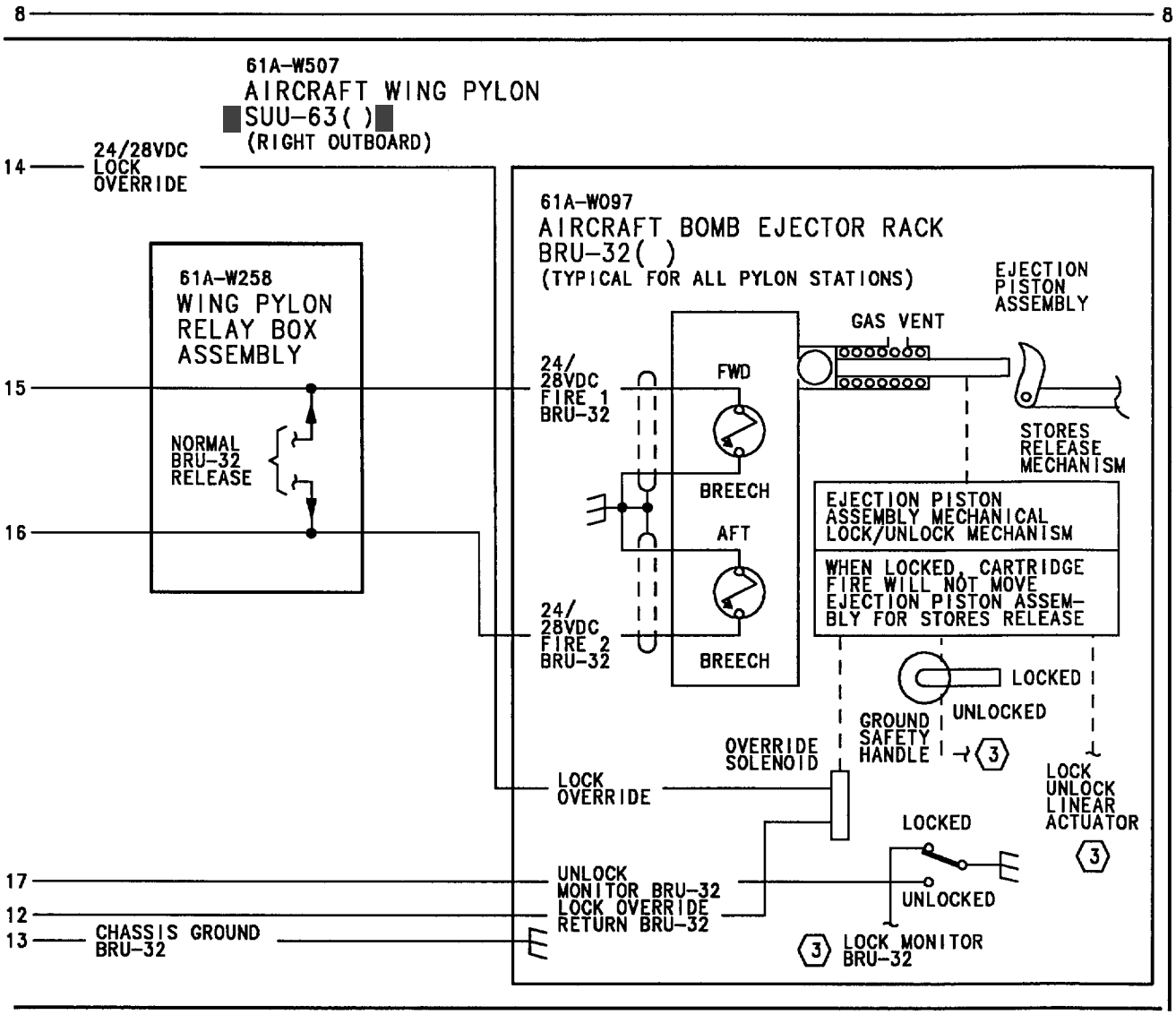
02800104

Figure 1. Emergency Jettison Simplified Schematic (Sheet 4)



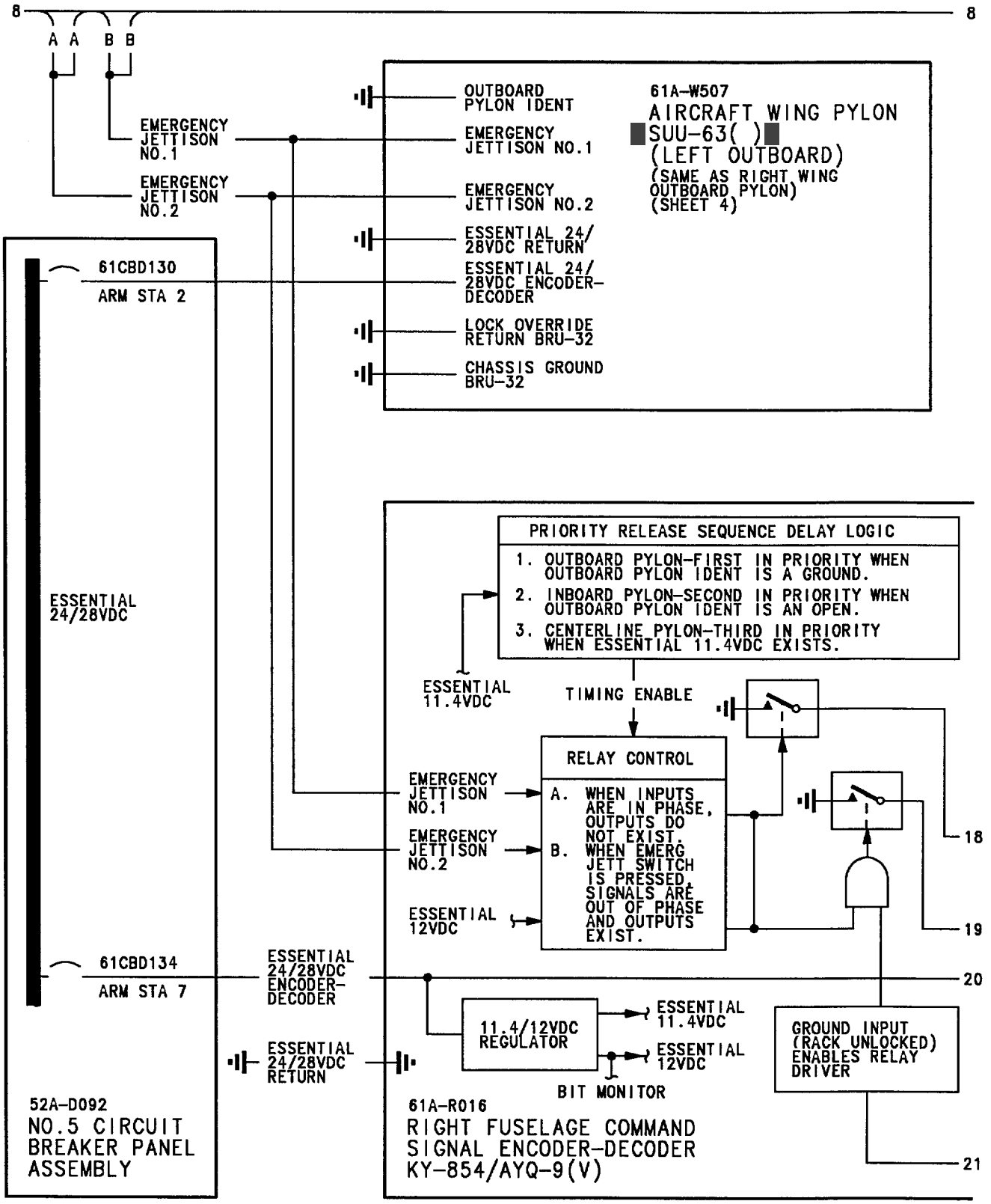
02800105

Figure 1. Emergency Jettison Simplified Schematic (Sheet 5)



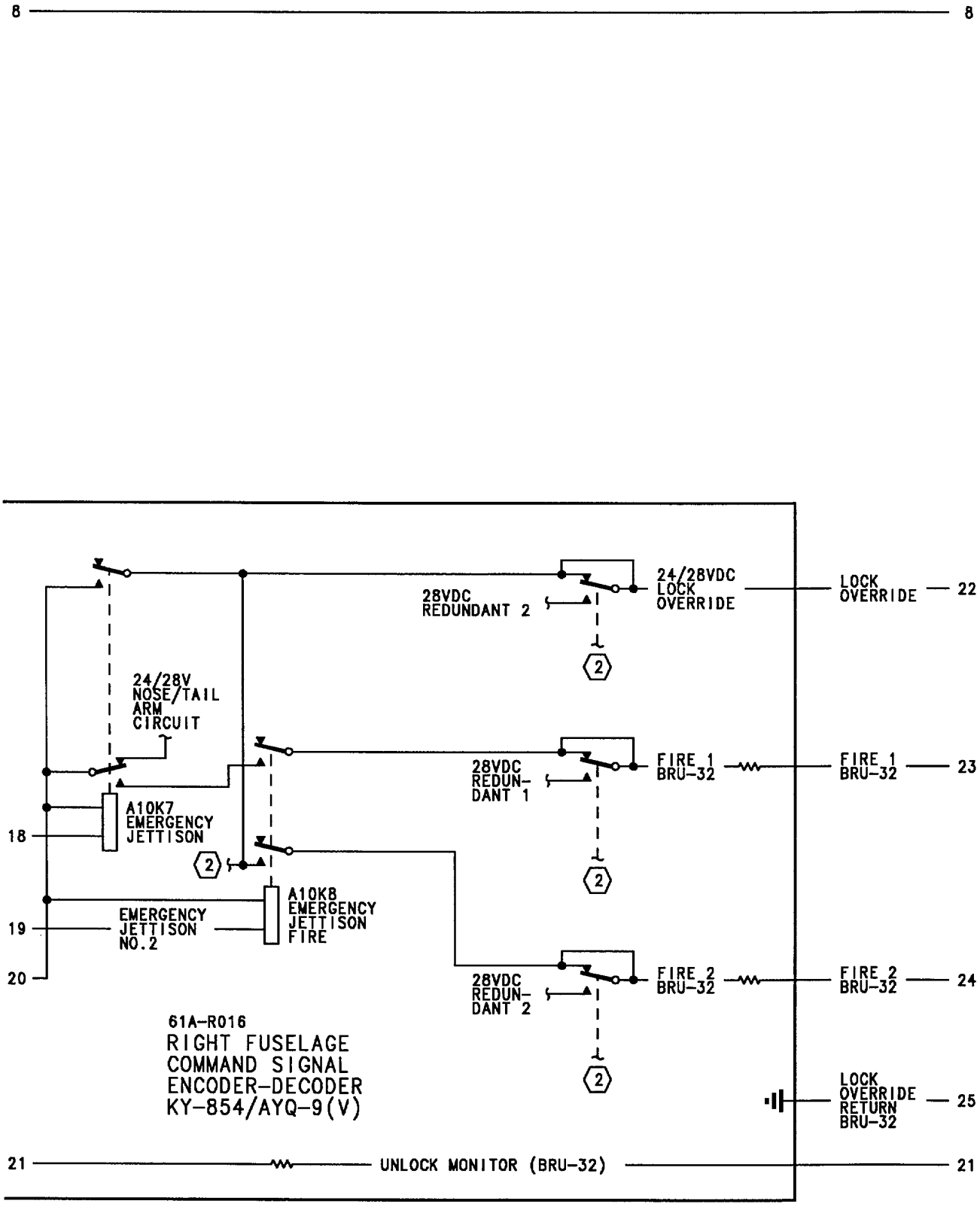
02800106

Figure 1. Emergency Jettison Simplified Schematic (Sheet 6)



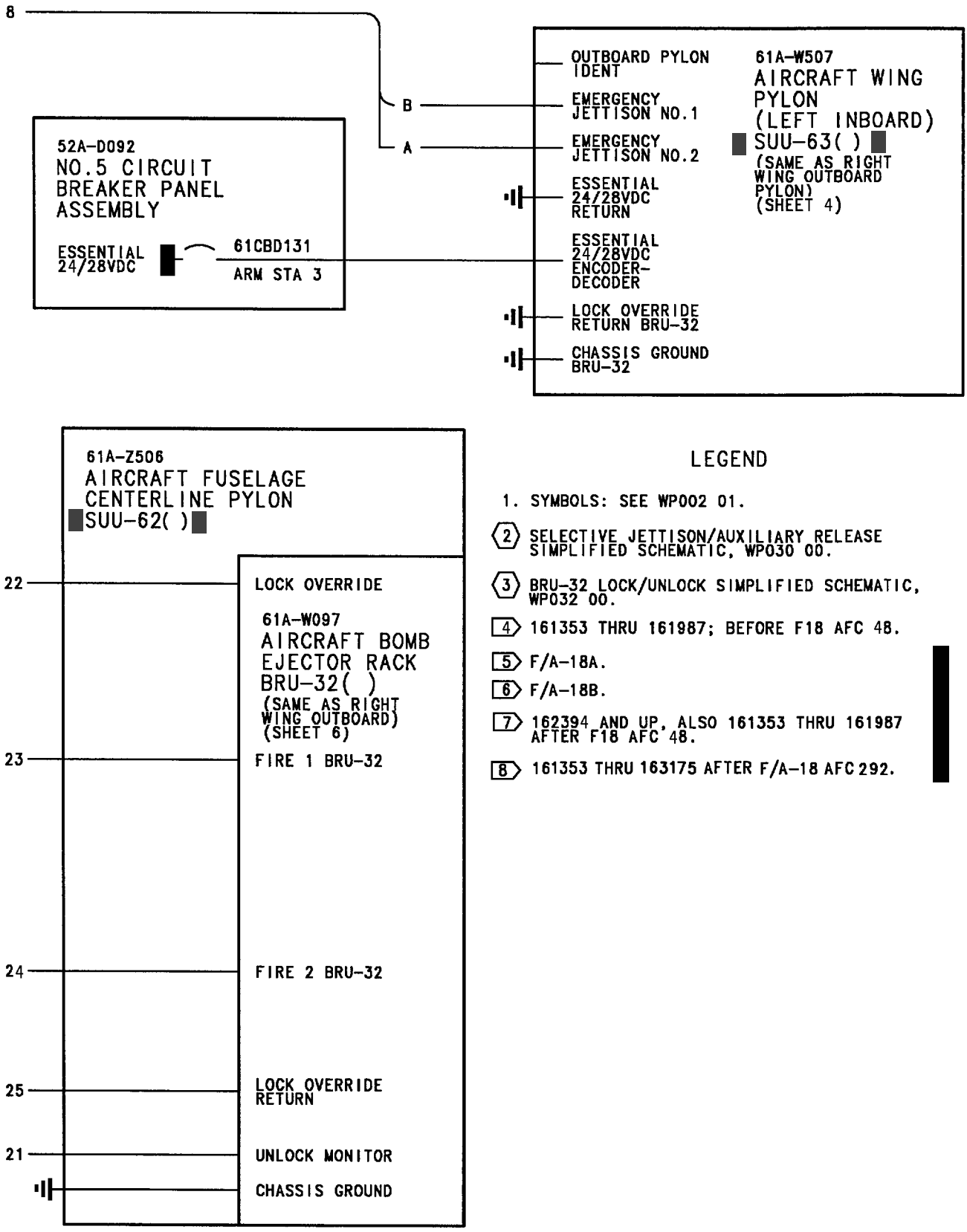
02800107

Figure 1. Emergency Jettison Simplified Schematic (Sheet 7)



02800108

Figure 1. Emergency Jettison Simplified Schematic (Sheet 8)



02800109

Figure 1. Emergency Jettison Simplified Schematic (Sheet 9)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - SELECTIVE JETTISON/AUXILIARY RELEASE

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Selective Jettison/Auxiliary Release Simplified Schematic WP030 00
Weapon Control System A1-F18AC-740-500
Selective Jettison/Auxiliary Release Schematic WP019 00

Alphabetical Index

Subject	Page No.
AGM-88 HARM Selective Jettison	3
Auxiliary Release	4
Introduction	2
Jettison Release	3
Jettison Release Logic	3
Jettison Select	2
Selective Jettison/Auxiliary Release Operation	2
Simulation Mode	4
Stores Jettison Release and Separation, Table 1	4
Stores Switch Logic, Table 2	6
1760 Store Selective Jettison	4

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) Selective Jettison/Auxiliary Release operation is provided in this work package. Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP030 00 for the simplified selective jettison/auxiliary release schematic the simplified schematic shows the selective jettison/auxiliary release operation. The left wing outboard pylon weapon station and left fuselage weapon station are shown. The right fuselage weapon station operates the same as the left fuselage weapon station. All five pylon weapon stations are the same as the left wing outboard pylon weapon station. The difference between the wing pylon stations and the centerline pylon station is that the right fuselage command signal encoder-decoder controls the centerline jettison signals.

4. Detail selective jettison/auxiliary release operation is shown in the Selective/Jettison/Auxiliary Release Schematic (A1-F18AC-740-500, WP019 00).

5. Refer to WP014 00 for component locations.

6. SELECTIVE JETTISON/AUXILIARY RELEASE OPERATION.

7. The selective jettison/auxiliary release function enables the release of stores, weapons, launchers, and racks on weapon stations 2 through 8. When sensor pods are loaded on stations 4 and 6, there is no jettison capability for stations 4 and 6. The wing tip weapon stations 1 and 9 have no jettison ability.

8. The armament computer software program logic and aircraft switching functions control the release signals for the stores separation. All weapons are released unarmed except the AGM-88 high speed anti-radiation missile (HARM). Table 1 lists the stores, release signal, and separation description.

9. Selective jettison is done by setting the selective jettison (SELECT JETT) rotary switch to left or right fuselage missile (L FUS MSL or R FUS MSL), rack/launchers (RACK/LCHR), or STORES position. For RACK/LCHR or STORES, stations 2, 3, 5, 7 and 8 are selected by pressing the jettison station selection pushbuttons: left outboard (LO), left inboard (LI), center (CTR), right inboard (RI), and/or right outboard (RO). Then the SELECT JETT pushbutton in the center of the rotary switch is pressed.

10. Auxiliary release is used to enable the gravity release of hung stores loaded on the pylon Aircraft Bomb Ejector Rack BRU-32( ). Auxiliary release is enabled when the normal release/selective jettison functions have failed and will not release the stores.

11. Selective jettison/auxiliary release operation in this work package is listed below:

a. jettison select

b. jettison release logic

c. jettison release

d. AGM-88 HARM selective jettison

e. auxiliary release

f. simulation mode

12. **JETTISON SELECT.** The SELECT JETT switch on the left hand vertical console control panel selects the AIM-7 missiles on weapon stations 4 and 6 for jettison (L FUS MSL or R FUS MSL). The switch also selects the type of jettison for the five pylon stations (STORES or RACK LCHR).

13. When the switch is set to any position other than SAFE, the switch setting enables the locked launcher/racks to unlock when all gear up and locked signal is true.

14. The JETT STATION SELECT switches on the main instrument panel, select the pylon stations to be jettisoned. When pressed to ON, that station is enabled to jettison the store as a function of the SELECT JETT switch position, JETT STATION SELECT switches are listed below:

a. CL - centerline

b. LO - left outboard wing Station

c. RO - right outboard wing Station

d. LI - left inboard wing Station

e. RI - right inboard wing Station

15. All stores do not have the store jettison ability. Table 2 lists the switch setting and release logic for the stores that can be loaded on the aircraft.

16. **JETTISON RELEASE LOGIC.** System interlock functions required to enable jettison are listed below:

a. MASTER switch at ARM

b. weight off wheels (release logic)

c. all gear up and locked (Stations unlocked, fuselage jettison enable)

d. Launcher/rack unlock monitor exists

17. **JETTISON RELEASE.** When JETT is pressed on the SELECT JETT switch, the jettison release function selected will be started if the release logic is set. The release signals sent by the armament computer are listed below.

a. fire 1 and 2 BRU-32

b. fire 1 and 2 BRU-33

c. eject command 1 and 2

d. AGM-88 Fire

e. step and fire

18. When more than one pylon weapon Station is selected for jettison, the armament computer establishes the release sequence listed.

a. Centerline pylon (weapon Station 5)

b. Left outboard wing pylon (weapon Station 2)

c. Right outboard wing pylon (weapon Station 8)

d. Left inboard wing pylon (weapon Station 3)

e. Right inboard wing pylon (weapon Station 7)

19. When Stations are selected for jettison that have bomb or maverick loaded, the electrical fuzing power supply is disabled. On bomb Stations, the nose arm and tail arm signals to the bomb racks are disabled.

20. Jettison and normal release firing circuits are the same. The circuit for fire 1 and 2 BRU-32 are described in the paragraphs below as a typical jettison release circuit.

21. Excitation for the JETT switch is the same excitation used by the gun/A/A missile trigger switch and A/G weapon release switch. The trigger clock output controls a 28vdc output driver. This output is a digital coded signal. When the JETT switch is pressed, the armament computer compares the input signal to the driver output. If the two signals are the same, fire 1 and 2 BRU-32 are sent to the encoder-decoder for the Station selected.

22. Fire 1 and 2 BRU-32 are sent to the encoder-decoder on the armament mux bus. The encoder-decoder changes the mux signals to the relay drive signals that energize fire 1 and 2 BRU-32 relays. The relays have a set of BIT monitor contacts that indicate the relay energized. When the relay energizes, the BIT monitor is sent to the armament computer to enable redundant 1 and 2. Redundant 1 and 2 are sent from the armament computer to the encoder-decoder. The signals enable the redundant 1 and 2 28vdc drivers that send the voltage through the energized contacts of the fire 1 and fire 2 relays. The voltage is sent to the wing pylon relay box assembly and if the master arm/release consent is received the voltage is sent to the BRU-32 explosive charges which cause the hooks to open and release the store.

23. **AGM-88 HARM SELECTIVE JETTISON.** The AGM-88 may be jettisoned from the aircraft by setting the SELECT JETT rotary switch to STORES or RACK/LCHR, selecting the Station on the FLAPS, LANDING GEAR AND STORES INDICATOR panel (LO, LI, RI, RO), and pressing the JETT switch. When all Stations are selected, the LAU-118 launchers and/or AGM-88 missiles are jettisoned sequentially by Station priority (8, 2, 7 and 3).

24. **AGM-88 STORES Jettison.** Selecting STORES jettison for pylon loaded AGM-88 missiles, may be completed by pressing the applicable switch (LO, LI, RI, RO) on the STATION SELECT panel, rotating the SELECT JETT switch to STORES, and pressing the JETT switch. The missile motor is ignited and the missile is fired off the launcher. The missile is armed and unguided. Separation of additional selected missiles is delayed 600-1000 milliseconds.

25. When the SELECT JETT switch is pressed, 28vdc off select signal is sent to armament computer HARM relays. The relay A coil energizes and opens HARM data circuits. HARM data is not sent to the command

launch computer (CLC) CP1001/AWG. The HARM Station available signal is not sent to the CLC. The stores (auxiliary) jettison signal is sent to the CLC.

26. The AGM-88 weapon Station power control circuit for the priority Station selected, energizes the Station power control relay. The relay provides 28vdc to the LAU-118 launcher and three phase 115vac to the missile. The 28vdc energizes solenoid relay L1. The armament computer also provides the power on command to the selected Station encoder/decoder.

27. The SELECT JETT switch signal also starts a 100 millisecond timer. When the 100 millisecond interval has elapsed, the armament computer provides an AGM-88 fire signal to the selected Station encoder/decoder.

28. The AGM-88 fire signal energizes A10K4 AGM-88 fire relay, sending 12vdc BIT monitor signal to the armament computer. The BIT monitor signal enables redundant 2 signal. The redundant 2 signal is sent from the armament computer through the energized contacts of A10K4 AGM-88 fire relay, through the energized contacts of the LAU-118 launcher AGM-88 solenoid relay L1, to the AGM-88 missile.

29. AGM-88 RACK/LCHR Jettison. Selective RACK/LCHR jettison of pylon mounted HARM missiles may be done by pressing the applicable switch (LO, LI, RI, RO) on the STATION SELECT panel, rotating the SELECT JETT switch to RACK/LCHR, and pressing the SELECT JETT switch.

30. When the SELECT JETT switch is pressed, fire 1 and fire 2 signals are sent to the BRU-32. The BRU-32 forward and aft cartridges explode which cause the hooks to open and jettison both LAU-118 launcher and AGM-88 missile. The AGM-88 missile is released unarmed.

31. **1760 STORES SELECTIVE JETTISON.** When a SLAM ER, JSOW or JDAM is selected for jettison, the armament computer delays the fire signal to the bomb rack. This delay allows the armament computer to enable the station power control circuits. When power is applied, the store will attempt a program erase.

32. When the delay is completed, selective jettison is initiated. The program erase is not verified prior to jettison.

33. **AUXILIARY RELEASE.** To start auxiliary release, the AUX REL switch is set to ENABLE and the JETT switch is pressed. The release logic is the same as jettison except the hung status is set to indicate normal release/selective jettison failed to release the store.

34. The auxiliary release signal is sent to the release consent relays is the wing pylon relay box assembly. If master arm/release consent is received, the relays energize and the auxiliary release signal is sent to the auxiliary release explosive charge in the BRU-32 to enable the gravity release of stores loaded on the BRU-32. Weapons and stores not authorized for auxiliary release will not have the MK-19 auxiliary cartridge installed.

35. **SIMULATION MODE.** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization or simulated weapon delivery for A/A and A/G weapons. Selective jettison/auxiliary release will not separate in simulation mode. For detailed description of SIM mode operation refer to WP026 01.

Table 1. Store Jettison Release And Separation

Store	Release Signal	Separation Description
AIM-7 Sparrow (Fuselage Station 4 and 6)	Eject 1 and 2 Command (LAU-116)	Separates AIM-7 from Aircraft Guided Missile Launcher LAU-116.
AIM-7 Sparrow (Pylon Stations 2 and 8, 3 3 and 7)	Fire 1 and 2 BRU-32	Separates Aircraft Guided Missile Launcher LAU-115 and AIM-7 from pylon BRU-32.
AIM-9 Sidewinder (Pylon Stations 2 and 8)	Fire 1 and 2 BRU-32	Separates Guided Missile Launcher LAU-7-5, LAU-115 and AIM-9 from Pylon BRU-32.

Table 1. Store Jettison Release And Separation (Continued)

Store	Release Signal	Separation Description
AIM-120 AMRAAM (Fuselage Station 4 and 6) 3	Eject 1 and 2 Command (LAU-116)	Separates AIM-120 from Aircraft Guided Missile Launcher LAU-116.
AIM-120 AMRAAM (pyon stations 2, 3, 7 and 8) 3	Fire 1 and 2 BRU-32	Separates Guided Missile LAU-127, LAU-115 and AIM-120 from pylon BRU-32.
AGM-65 Maverick (Pylon Stations 2, 3, 7, and 8)	Fire 1 and 2 BRU-32	Separates Aircraft Guided Missile Launchers LAU-117 and AGM-65 from pylon BRU-32.
AGM-88 HARM (Pylon Stations 2, 3, 7, and 8)	AGM-88 Fire	Rail launch AGM-88 from Aircraft Guided Missile Launcher LAU-118.
Single Bomb/Mine (Pylon Stations 2, 3, 5, 7, and 8)	Fire 1 and 2 BRU-32	Separates Bomb from pylon BRU-32.
Bombs/Mines on BRU-33 (Pylon Stations 2, 3, 5, 7, and 8)	Fire 1 and 2 BRU-33	Separates left/right bomb from Aircraft Bomb Ejector Rack BRU-33.
Bombs on Multiple Ejector Rack (MER) (Stations 2, 3, 5, 7, and 8)	Step and Fire	Separates bombs from MER/BRU-41 or BRU-42.
AWW-13 Advanced Data Link Pod (Pylon station 2, 3, 5, 7 and 8) 3	Fire 1 and 2 BRU-32	Separates Guided Weapon Control-Monitor Set AN-AWW-13 from Pylon BRU-32.
FPU/6 or FPU/8 fuel tank (Pylon Station 3, 5, and 7)	Fire 1 and 2 BRU-32	Separates Aircraft Fuel Tank FPU/6, or FPU/8A from pylon BRU-32.
Rocket Pods on BRU-33 (Pylon Station 2, 3, 7, and 8)	Fire 1 and 2 BRU-33	Separates LAU-10, LAU-61 and LAU-68 rocket pod launchers from left/right BRU-33.
LAU-7 (Pylon Stations 2, and 8)	Fire 1 and 2 BRU-32	Separates LAU-7 and LAU-115 from pylon BRU-32.
3 SLAM ER, JDAM and JSOW (pylon stations 2, 3, 7 and 8)	Fire 1 and 2 BRU-32	Separates 1760 weapon from pylon BRU-32
LAU-115 (Pylon Stations 2, and 8)	Fire 1 and 2 BRU-32	Separates LAU-115 from pylon BRU-32.
LAU-117 (Pylon Stations 2, 3, 7, and 8)	Fire 1 and 2 BRU-32	Separates LAU-117 from pylon BRU-32.
LAU-118 (Pylon Stations 2, 3, 7, and 8)	Fire 1 and 2 BRU-32	Separates LAU-118 from pylon BRU-32.

Table 1. Store Jettison Release And Separation (Continued)

Store	Release Signal	Separation Description
BRU-33 (Pylon Stations 2, 3, 5, 7, and 8)	Fire 1 and 2 BRU-32	Separates BRU-33 from pylon BRU-32.
Multiple Ejector Rack/ BRU-41 or BRU-42 (Pylon Stations 2, 3, 7 and 8)	Fire 1 and 2 BRU-32	Separates Multiple Ejector Rack/BRU-41 or BRU-42 from pylon BRU-32.
[1] AGM-84 Harpoon (Pylon Stations 2, 3, 7, and 8)	Fire 1 and 2 BRU-32	Separates AGM-84 Harpoon from pylon BRU-32.
[2] AGM-84E SLAM (Pylon Stations 2, 3, 7, and 8)	Fire 1 and 1 BRU-32	Separates AGM-84E SLAM from pylon BRU-32.
LAU-127 (Pylon Stations 2, 3, 7 and 8) [3]	Fire 1 and 2 BRU-32	Separates LAU-127 and LAU-115 from pylon BRU-32.

NOTES

[1] 162394 AND UP: ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74.

[2] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

[3] 162394 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Table 2. Stores Switch Logic

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
AIM-7 Station 4	X					X					
AIM-7 Station 6		X				X					
AIM-7 Station 2					X	X					X
[3] AIM-7 Station 3					X	X				X	
[3] AIM–7 Station 7					X	X	X				

Table 2. Stores Switch Logic (Continued)

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
AIM-7 Station 8					X	X		X			
AIM-9 Station 2					X	X					X
AIM-9 Station 8					X	X		X			
AGM-65 Station 2					X	X					X
AGM-65 Station 3					X	X				X	
AGM-65 Station 7					X	X	X				
AGM-65 Station 8					X	X		X			
AGM-88 Station 2				X		X					X
AGM-88 Station 3				X		X				X	
AGM-88 Station 7				X		X	X				
AGM-88 Station 8				X		X		X			
Single Bomb/Mine Station 2					X	X					X
Single Bomb/Mine Station 3					X	X				X	
Single Bomb/Mine Station 5					X	X			X		
Single Bomb/Mine Station 7					X	X	X				
Single Bomb/Mine Station 8					X	X		X			
Bombs/Mines/ rocket pods on BRU-33 Station 2				X		X					X

Table 2. Stores Switch Logic (Continued)

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
Bombs/Mines/ rocket pods on BRU-33 Station 3				X		X				X	
Bombs/Mines on BRU-33 Station 5				X		X			X		
Bombs/Mines/ Rocket Pods on BRU-33 Station 7				X		X	X				
Bombs/Mines/ Rocket Pods on BRU-33 Station 8				X		X		X			
Bombs Multiple Ejector Rack/ BRU-41 or BRU-42 Station 2				X		X					X
Bombs on Multiple Ejector Rack/ BRU-41 or BRU-42 Station 3				X		X				X	
Bombs on Multiple Ejector Rack/ BRU-41 or BRU-42 Station 5				X		X			X		
Bombs on Multiple Ejector Rack/ BRU-41 or BRU-42 Station 7				X		X	X				
Bombs on Multiple Ejector Rack/ BRU-41 or BRU-42 Station 8				X		X		X			
Fuel Tank Station 3					X	X				X	
Fuel Tank Station 5					X	X			X		

Table 2. Stores Switch Logic (Continued)

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
Fuel Tank Station 7					X	X	X				
LAU-7 Station 2			X			X					X
LAU-7 Station 8			X			X		X			
LAU-115 Station 2			X			X					X
LAU-115 Station 8			X			X		X			
LAU-117 Station 2			X			X					X
LAU-117 Station 3			X			X				X	
LAU-117 Station 7			X			X	X				
LAU-117 Station 8			X			X		X			
LAU-118 Station 2			X			X					X
LAU-118 Station 3			X			X				X	
LAU-118 Station 7			X			X	X				
LAU-118 Station 8			X			X		X			
BRU-33 Station 2			X			X					X
BRU-33 Station 3			X			X				X	
BRU-33 Station 5			X			X			X		
BRU-33 Station 7			X			X	X				
BRU-33 Station 8			X			X		X			

Table 2. Stores Switch Logic (Continued)

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
Multiple Ejector Rack/ BRU-41 or BRU-42 Station 2			X			X					X
Multiple Ejector Rack/ BRU-41 or BRU-42 Station 3			X			X				X	
Multiple Ejector Rack/ BRU-41 or BRU-42 Station 5			X			X			X		
Multiple Ejector Rack/ BRU-41 or BRU-42 Station 7			X			X	X				
Multiple Ejector Rack/ BRU-41 or BRU-42 Station 8			X			X		X			
[1] AGM-84 Station 2					X	X					X
[1] AGM-84 Station 3					X	X				X	
[1] AGM-84 Station 7					X	X	X				
[1] AGM-84 Station 8					X	X		X			
[2] AGM-84E Station 2					X	X					X
[2] AGM-84E Station 3					X	X				X	
[2] AGM-84E Station 7					X	X	X				
[2] AGM-84E Station 8					X	X		X			
[3] LAU-127 station 2			X			X					X

Table 2. Stores Switch Logic (Continued)

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
3 LAU-127 station 3			X			X				X	
3 LAU-127 station 7			X			X	X				
3 LAU-127 station 8			X			X		X			
3 AIM-120 station 4	X					X					
3 AIM-120 station 6		X				X					
3 AIM-120 station 2					X	X					X
3 AIM-120 station 8					X	X		X			
3 AWW-13 station 2					X	X					X
3 AWW-13 station 3					X	X				X	
3 AWW-13 station 5					X	X			X		
3 AWW-13 station 7					X	X	X				
3 AWW-13 station 8					X	X		X			
3 SLAM ER station 2					X	X					X
3 SLAM ER station 3					X	X				X	
3 SLAM ER station 7					X	X	X				
3 SLAM ER station 8					X	X		X			
3 JSOW station 2					X	X					X

Table 2. Stores Switch Logic (Continued)

Store	SELECT JETT Switch						JETT STATION SELECT Switch				
	L FUS MSL	R FUS MSL	RACK LCHR	STORES	STORES or RACK LCHR	JETT (Pressed)	RI	RO	CTR	LI	LO
[3] JSOW station 3					X	X				X	
[3] JSOW station 7					X	X	X				
[3] JSOW station 8					X	X		X			
[3] JDAM station 2					X	X					X
[3] JDAM station 3					X	X				X	
[3] JDAM station 7					X	X	X				
[3] JDAM station 8					X	X		X			

NOTES

[1] 162394 AND UP: ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74.

[2] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

[3] 162394 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - SELECTIVE JETTISON/AUXILIARY RELEASE SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

Subject	Page No.
Introduction	1
Selective Jettison/Auxiliary Release Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only

1. INTRODUCTION.

2. The schematic in this work package is provided to support the data in WP029 00.

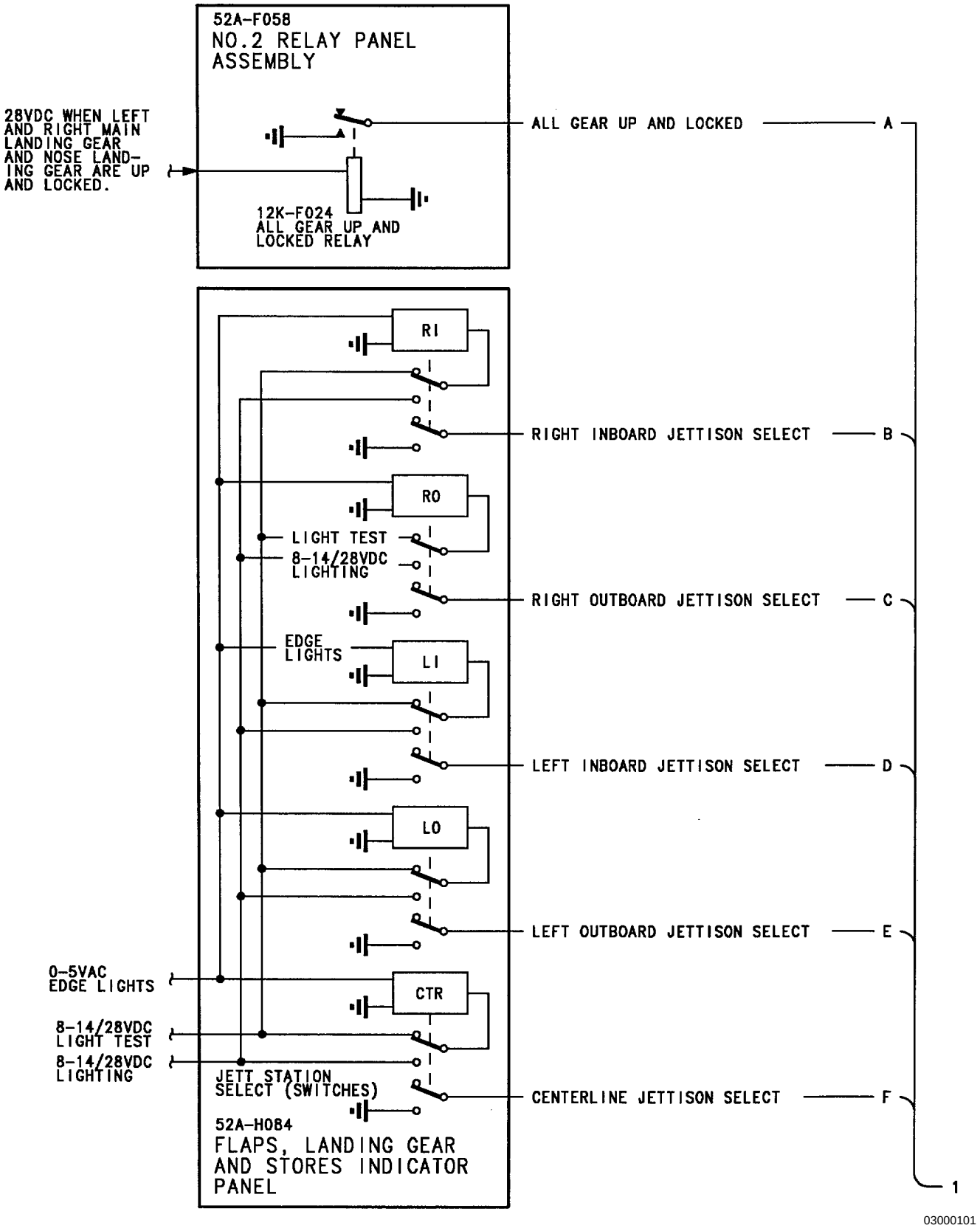
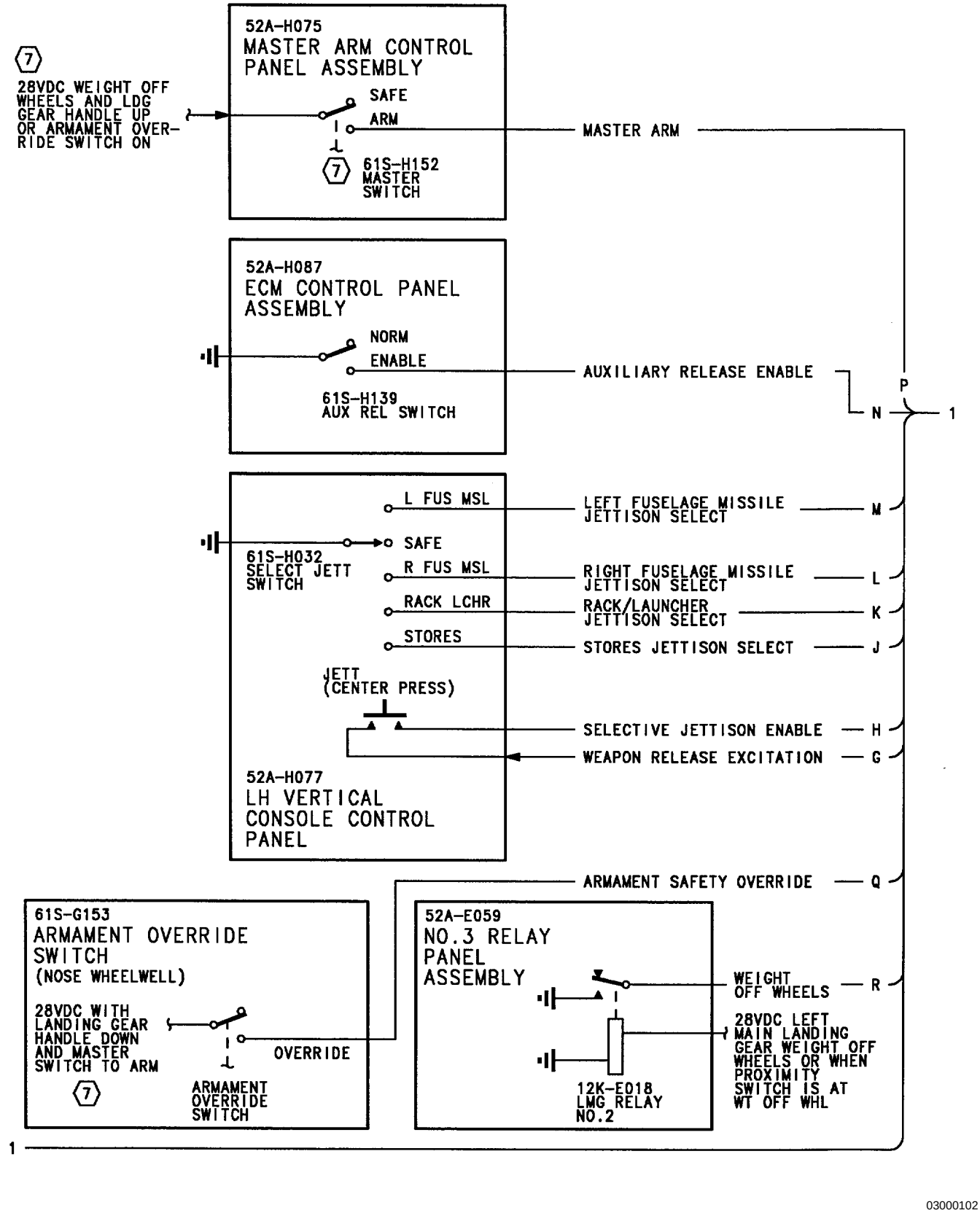
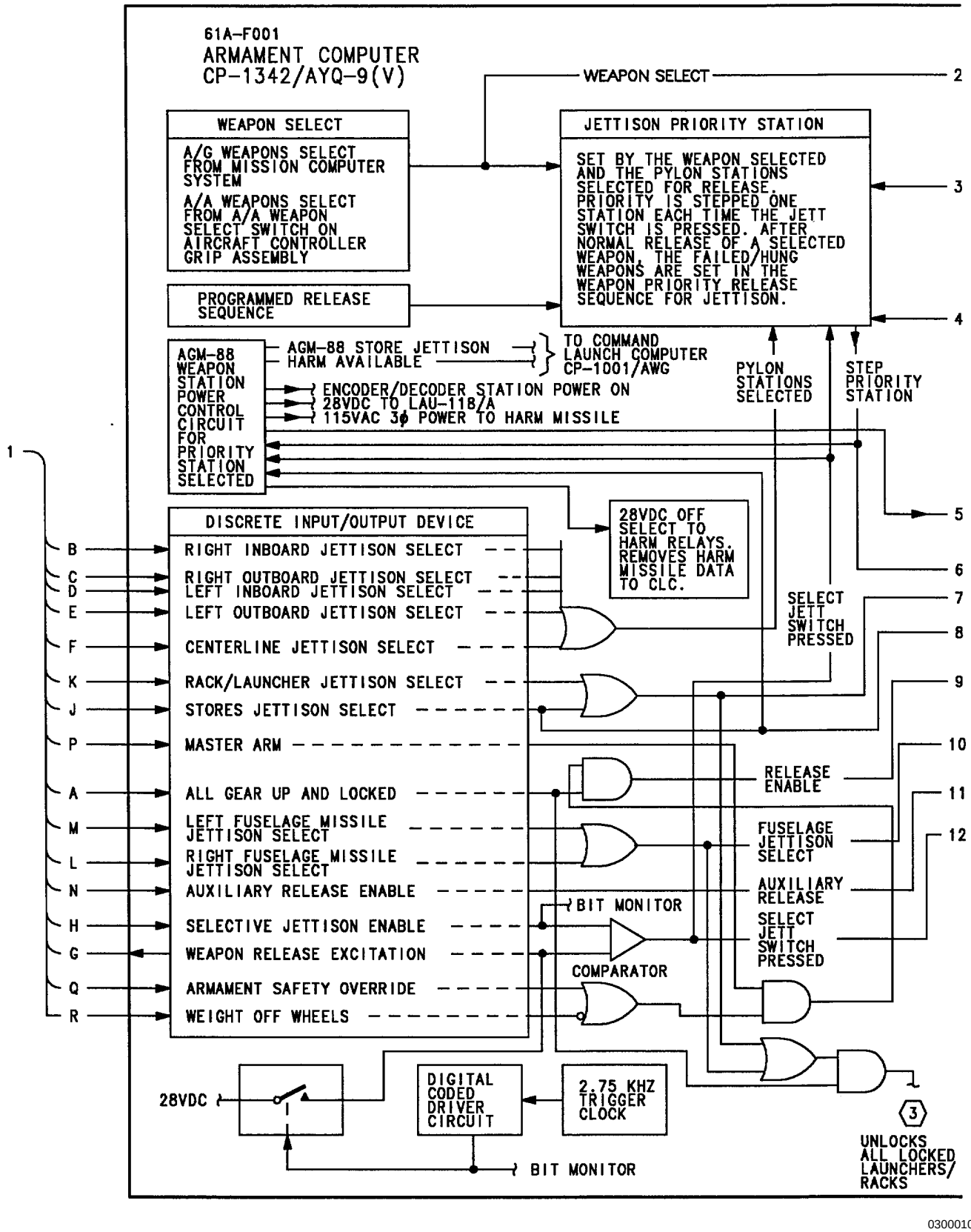


Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 1)



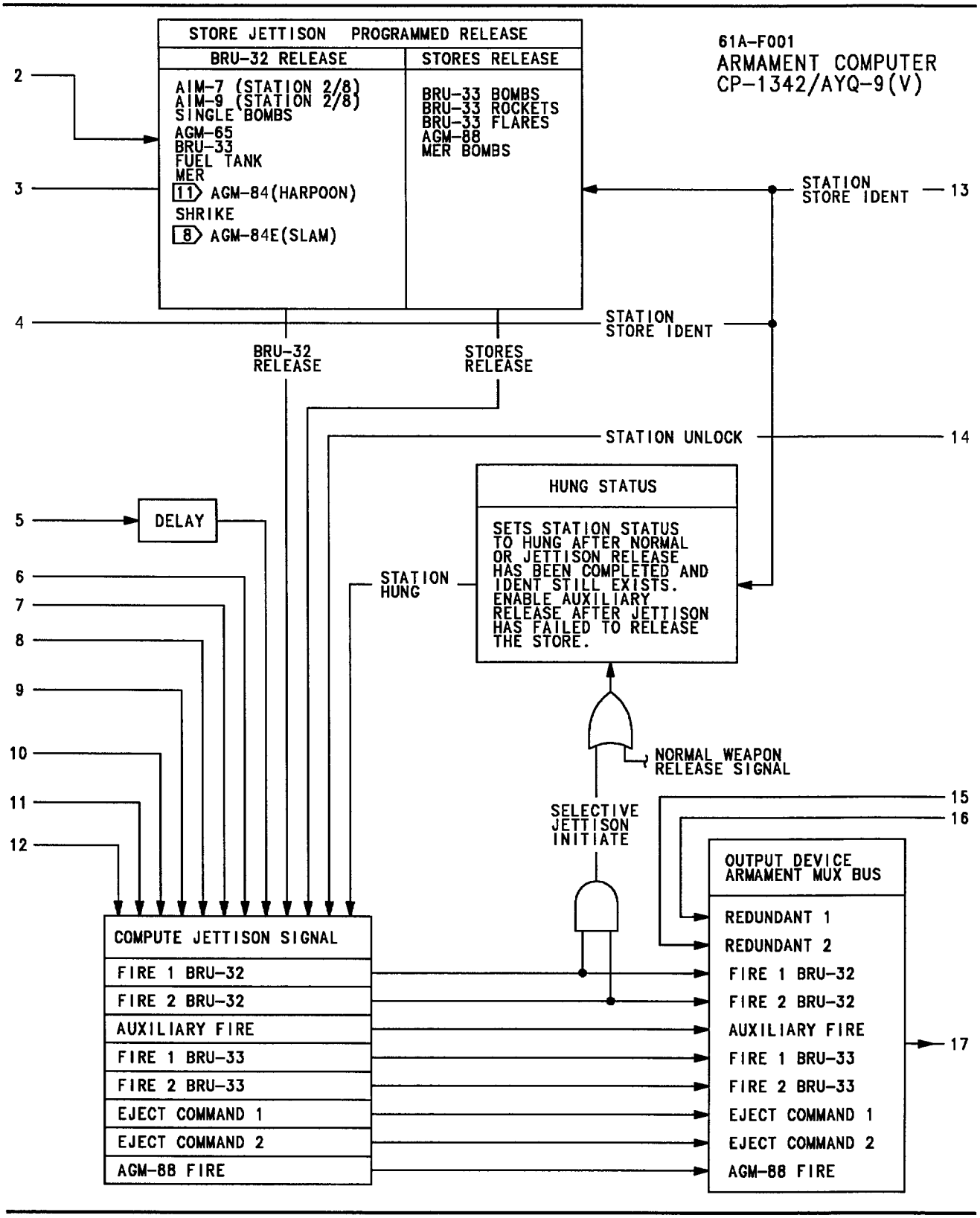
03000102

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 2)



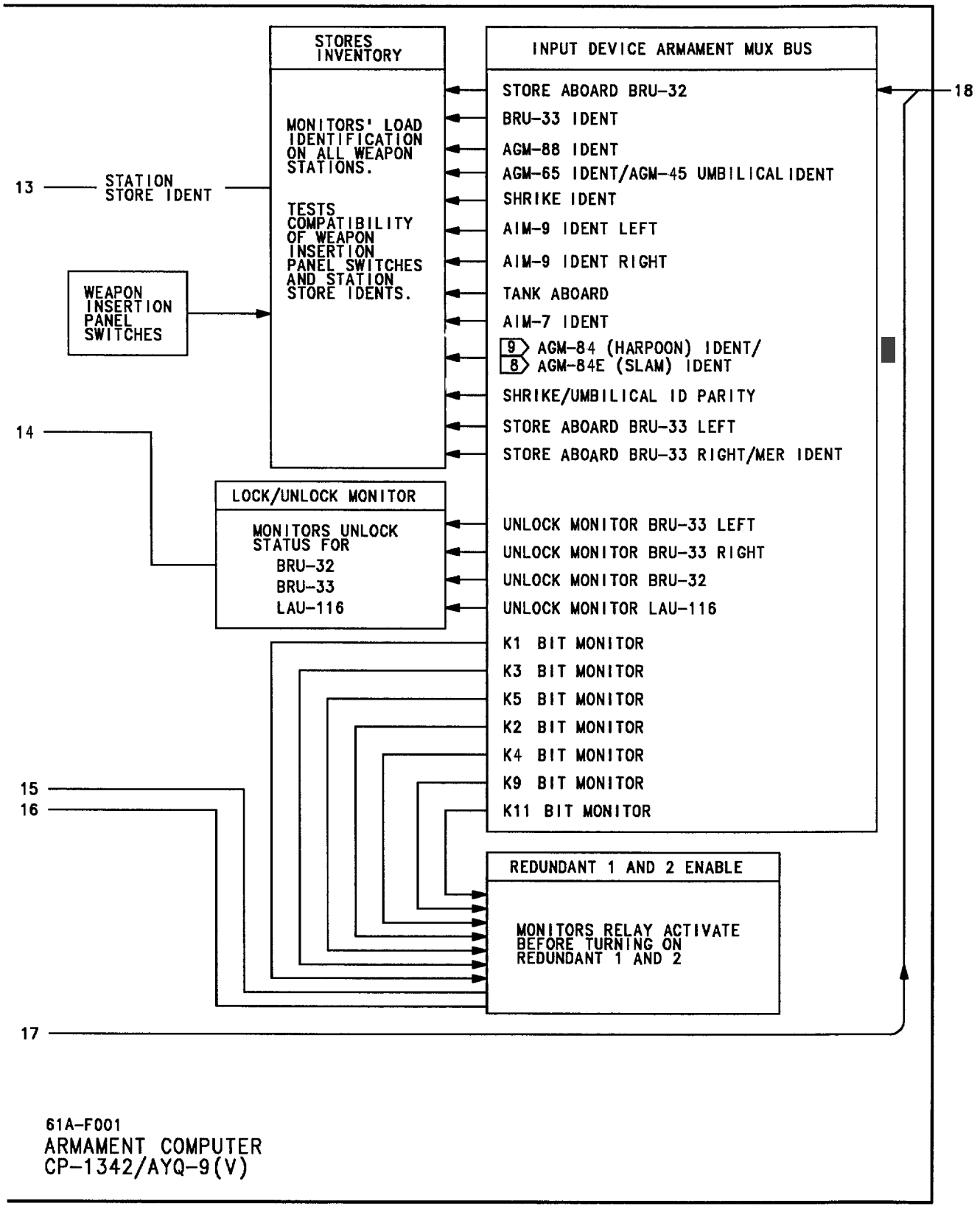
03000103

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 3)



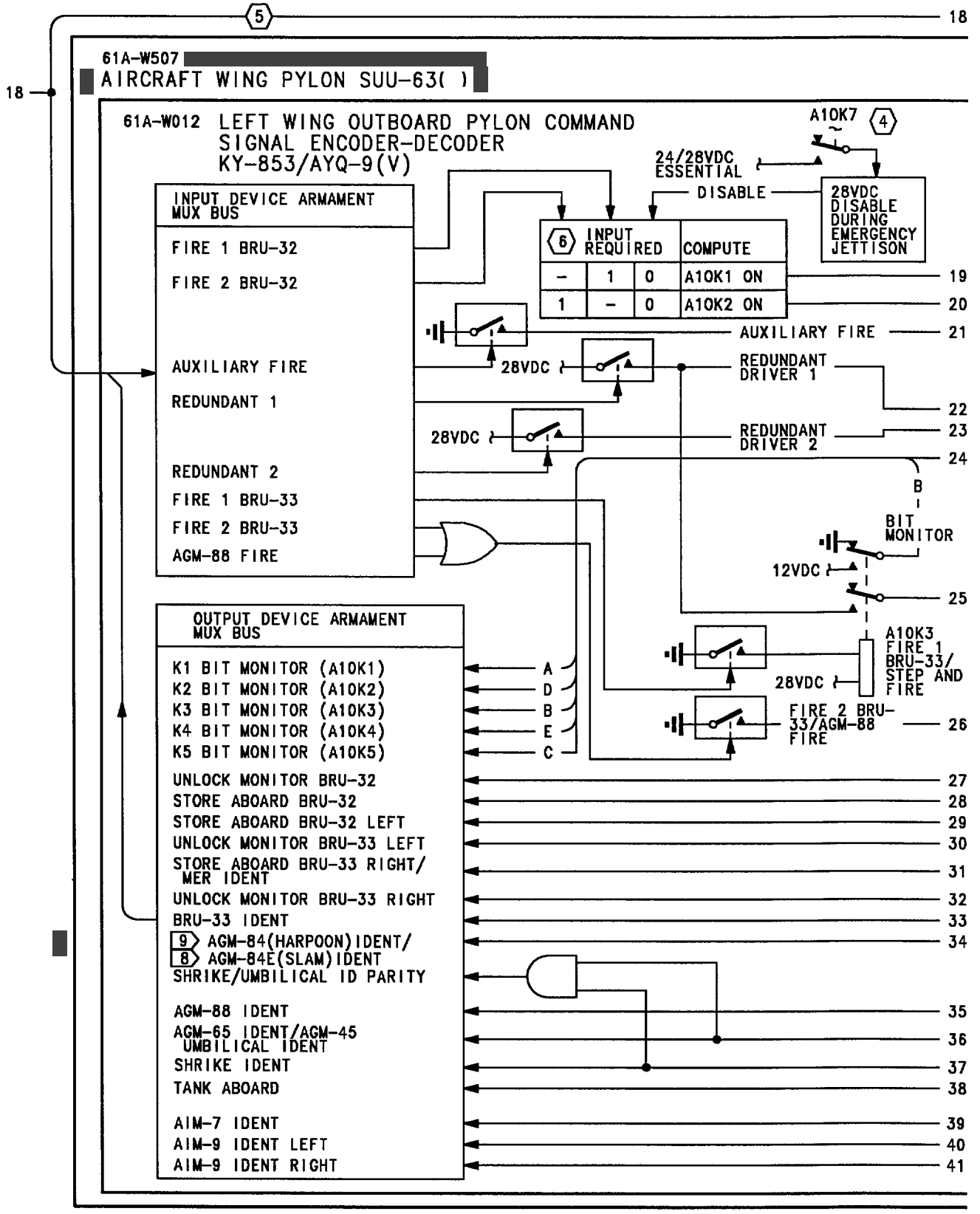
03000104

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 4)



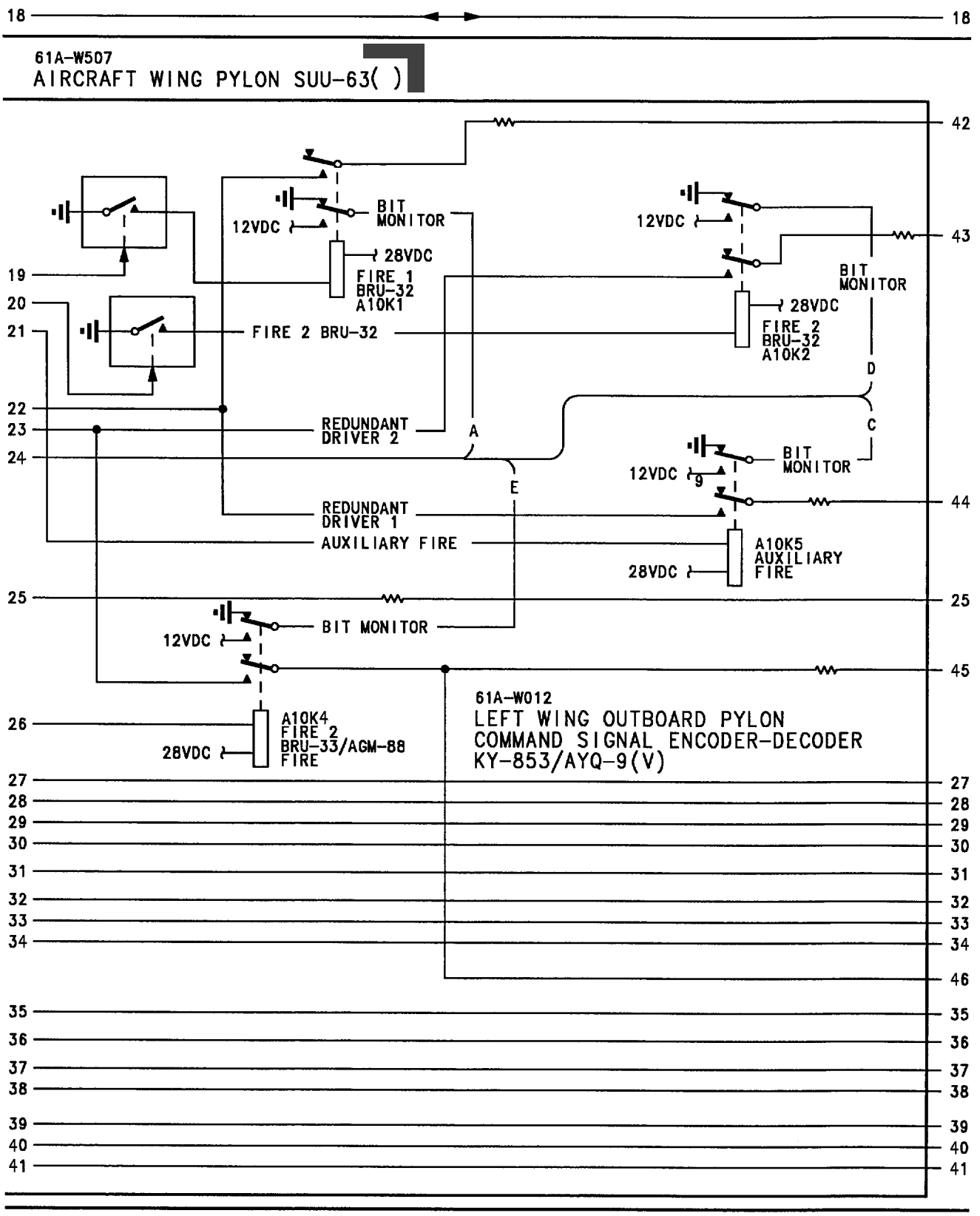
03000105

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 5)



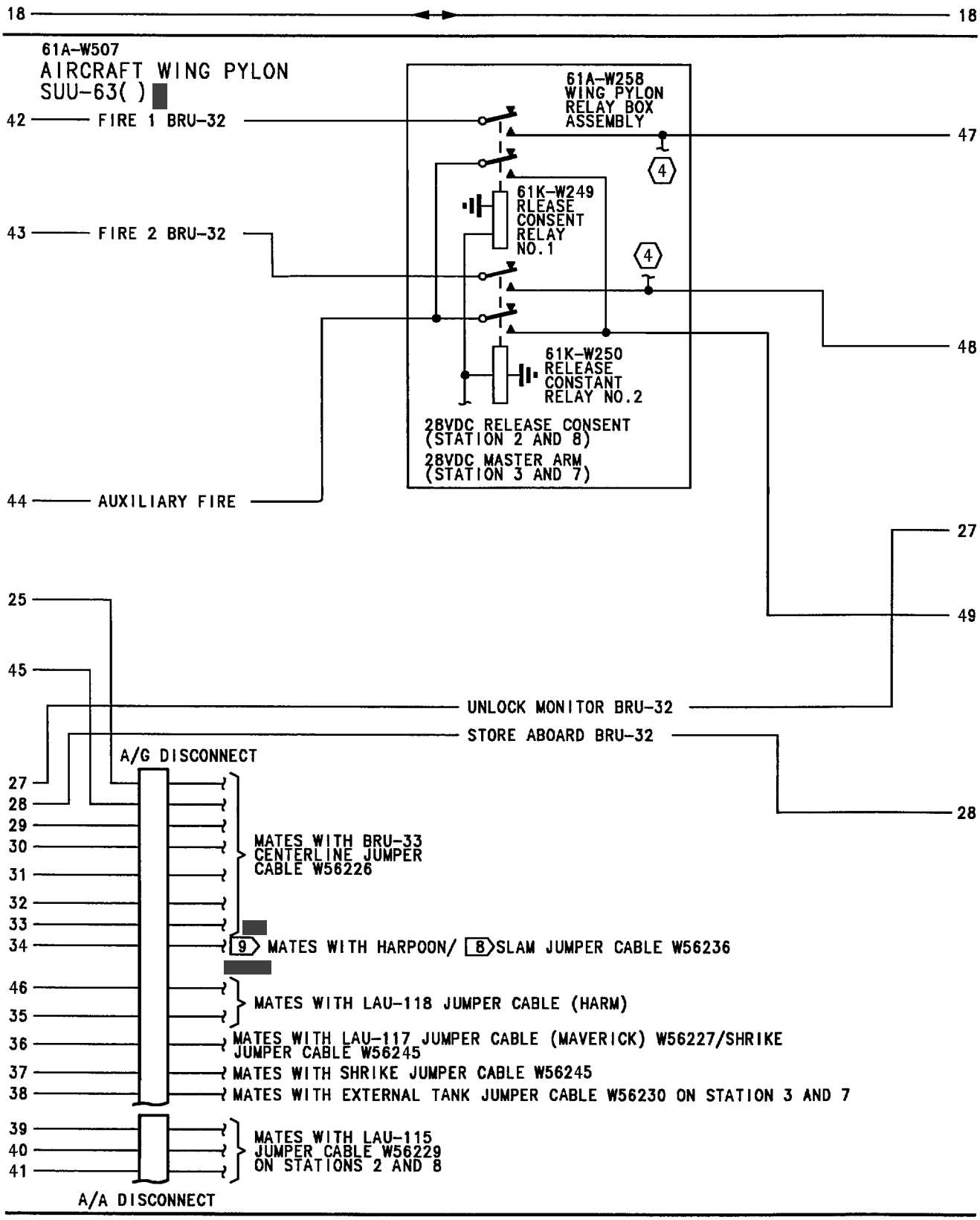
03000106

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 6)



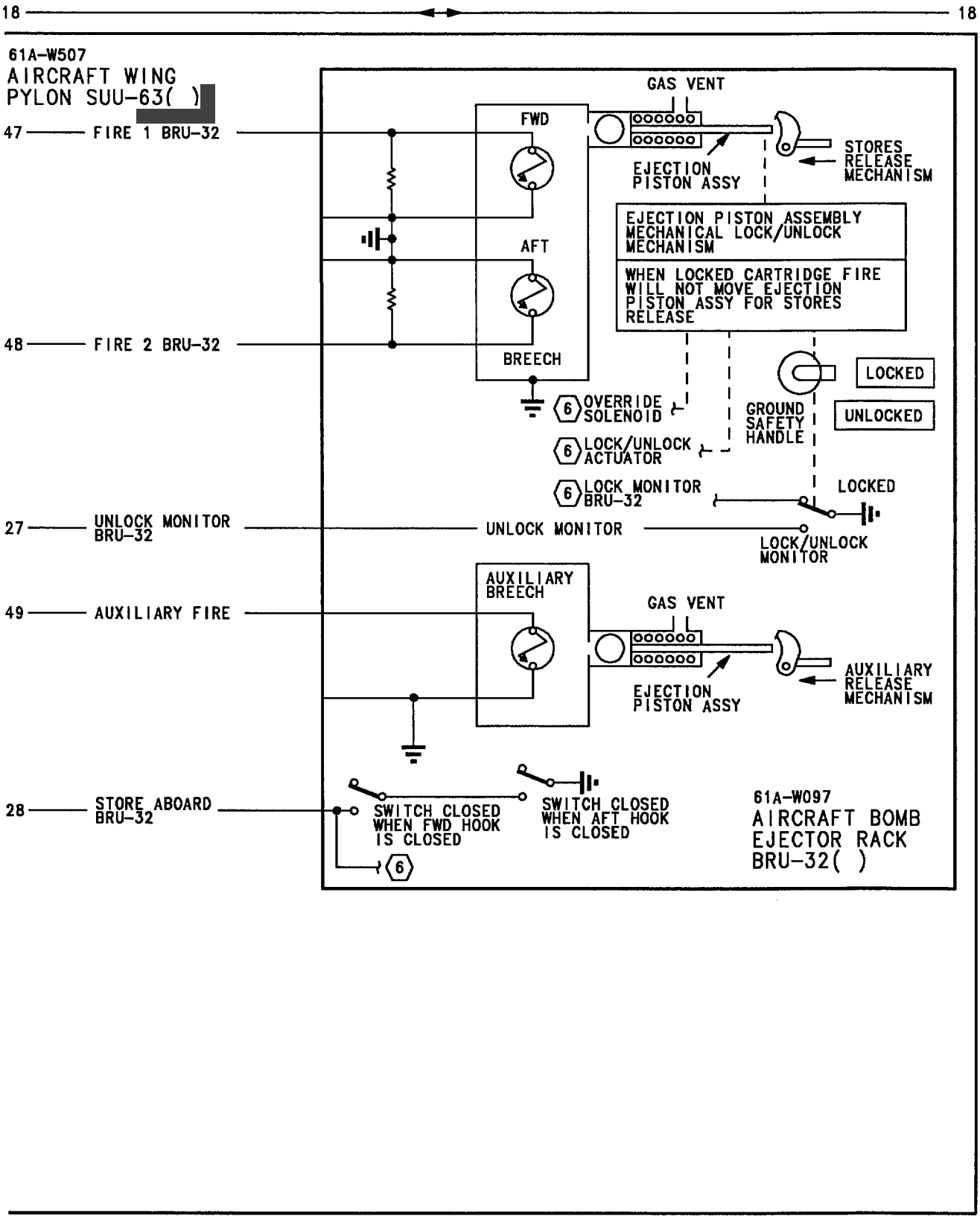
03000107

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 7)



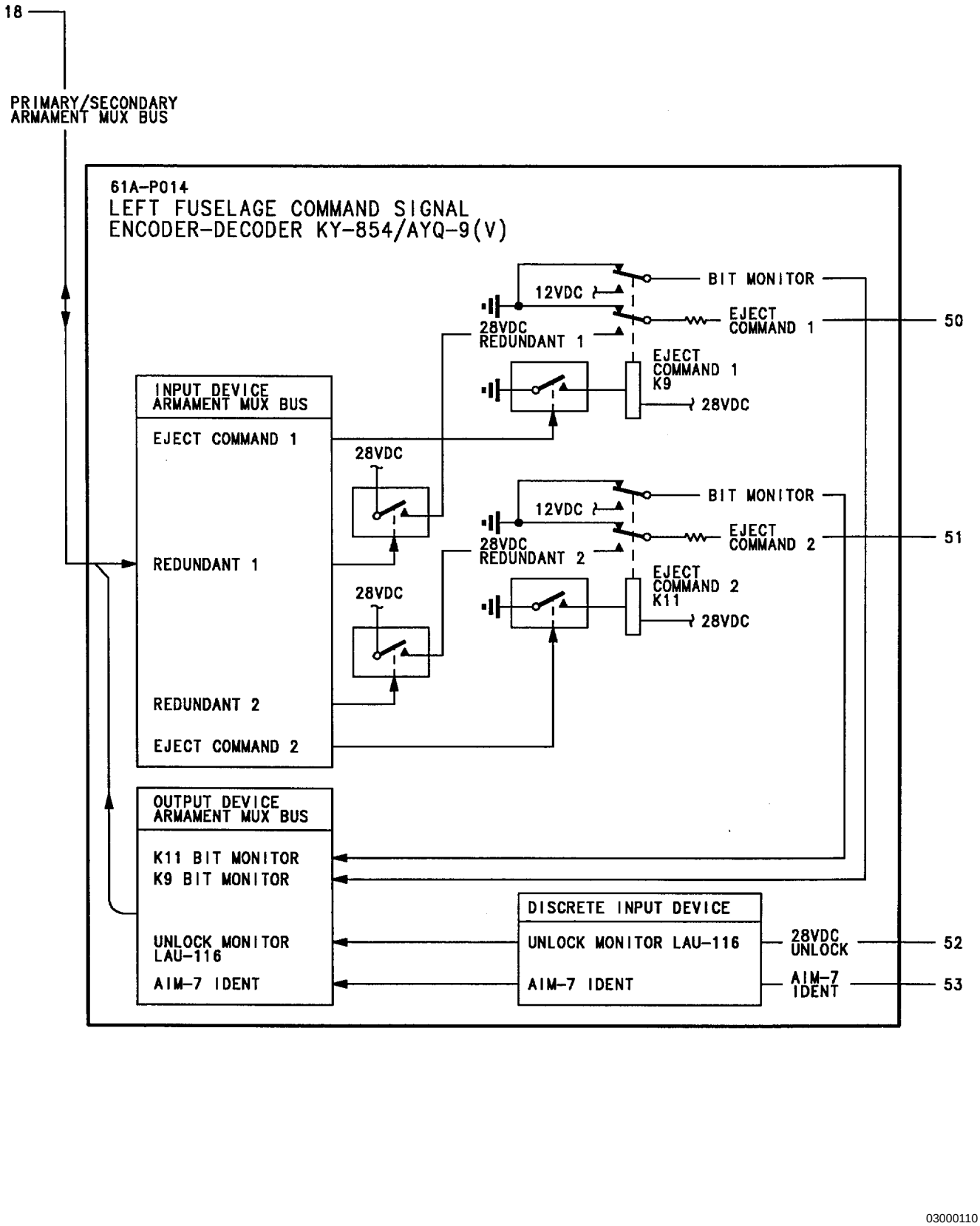
03000108

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 8)



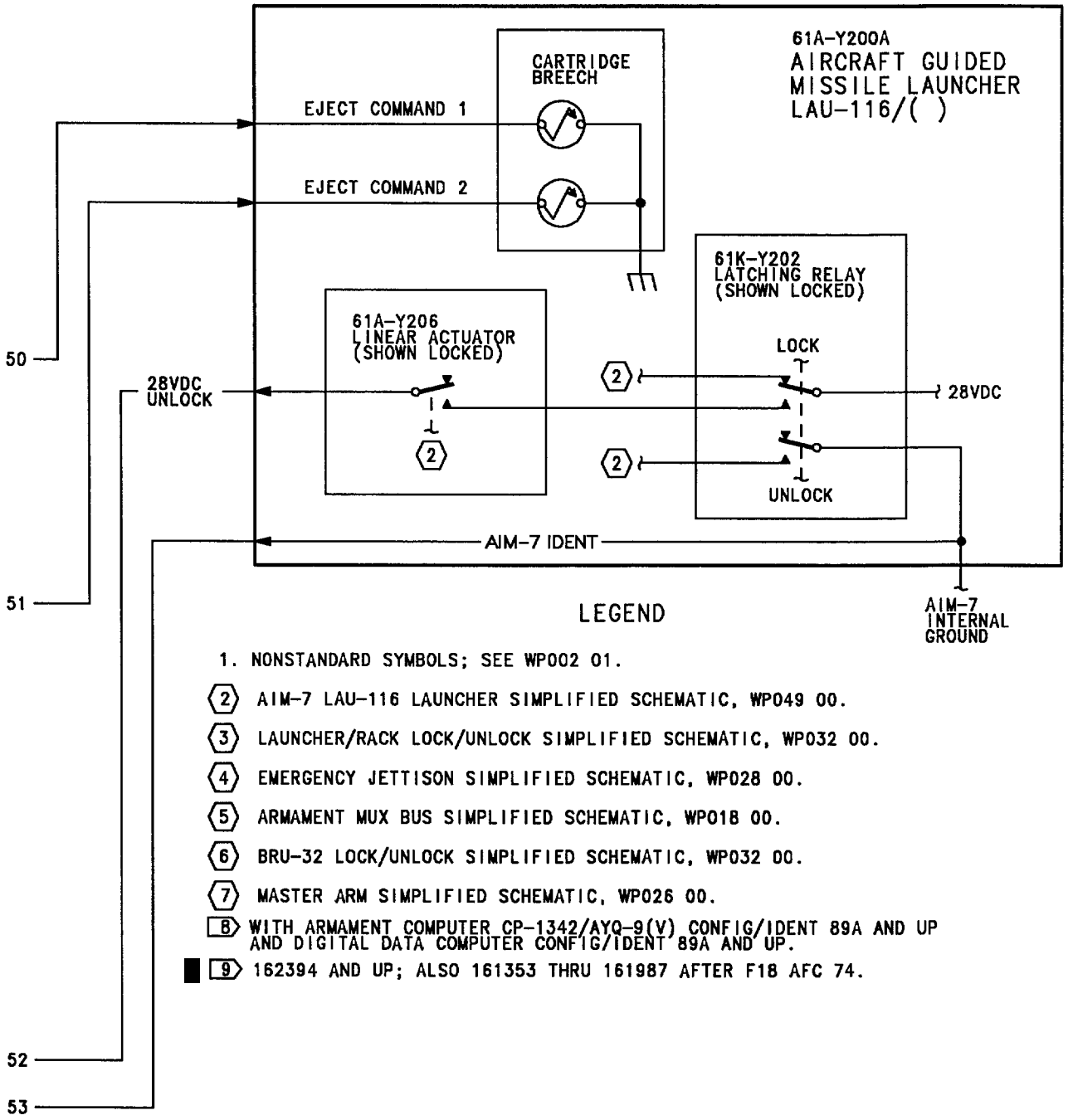
03000109

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 9)



03000110

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 10)



03000111

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 11)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - SELECTIVE JETTISON/AUXILIARY RELEASE SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

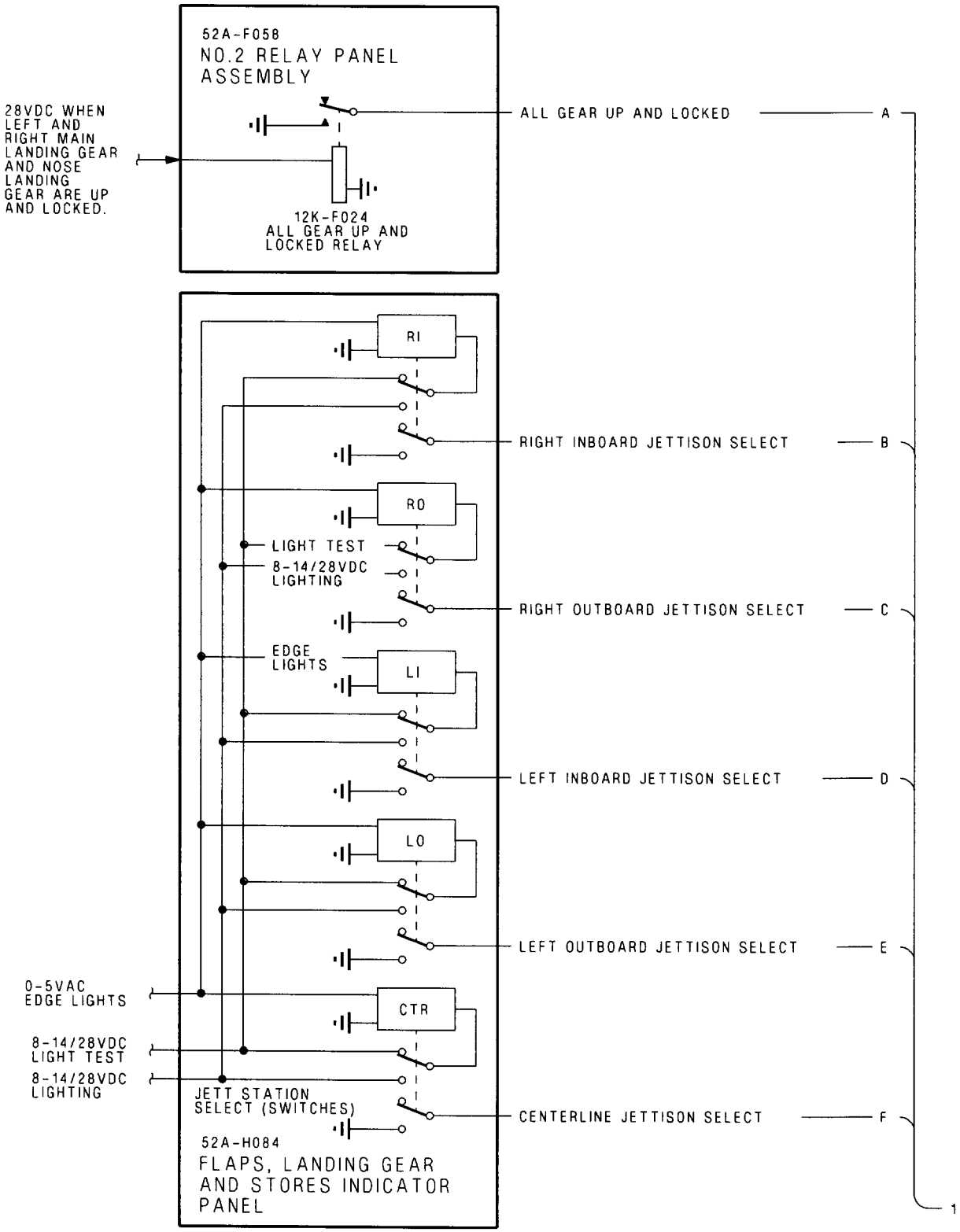
Subject	Page No.
Introduction	1
Selective Jettison/Auxiliary Release Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The schematic in this work package is provided to support the data in WP029 00.



30010101

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 1)

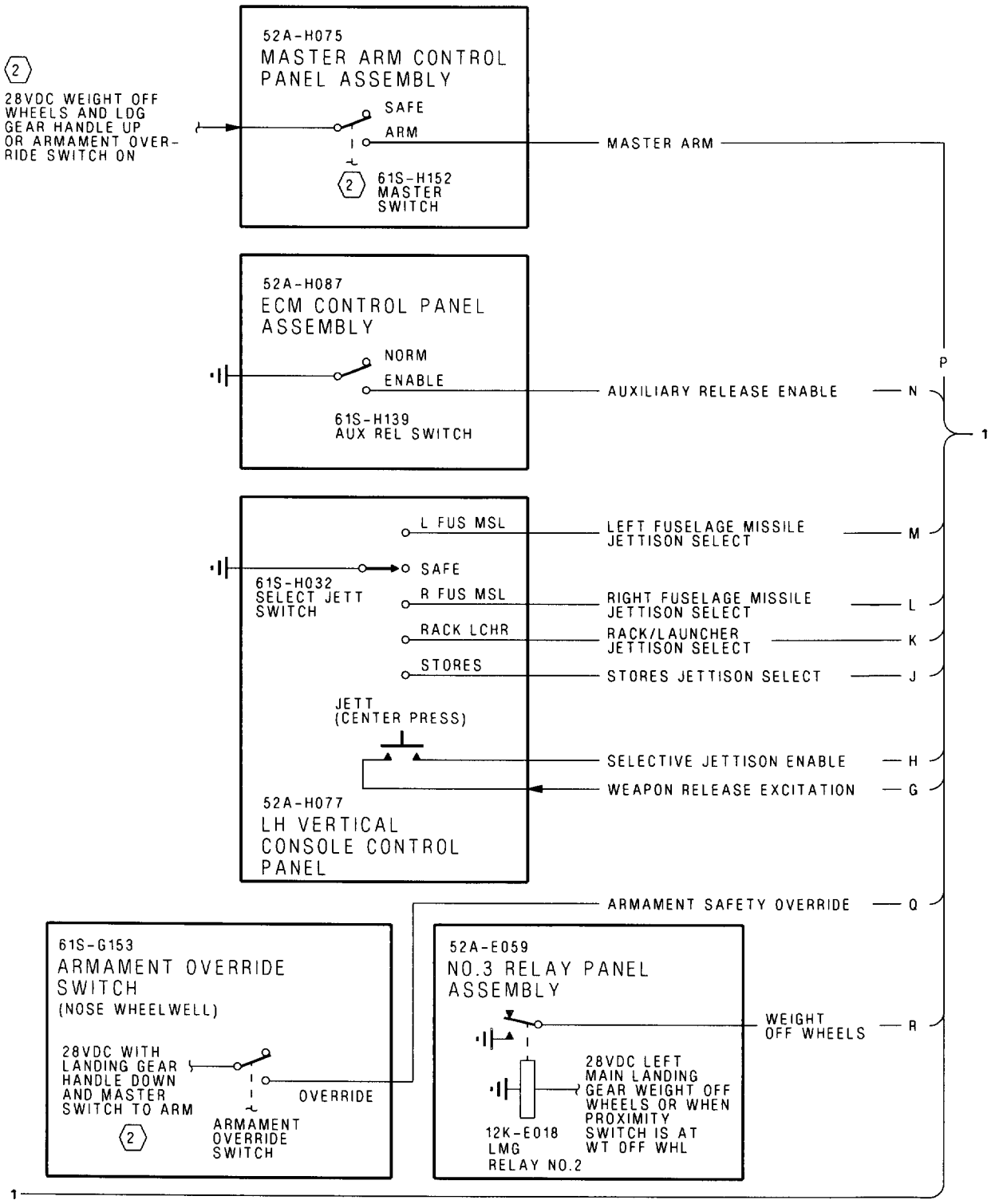
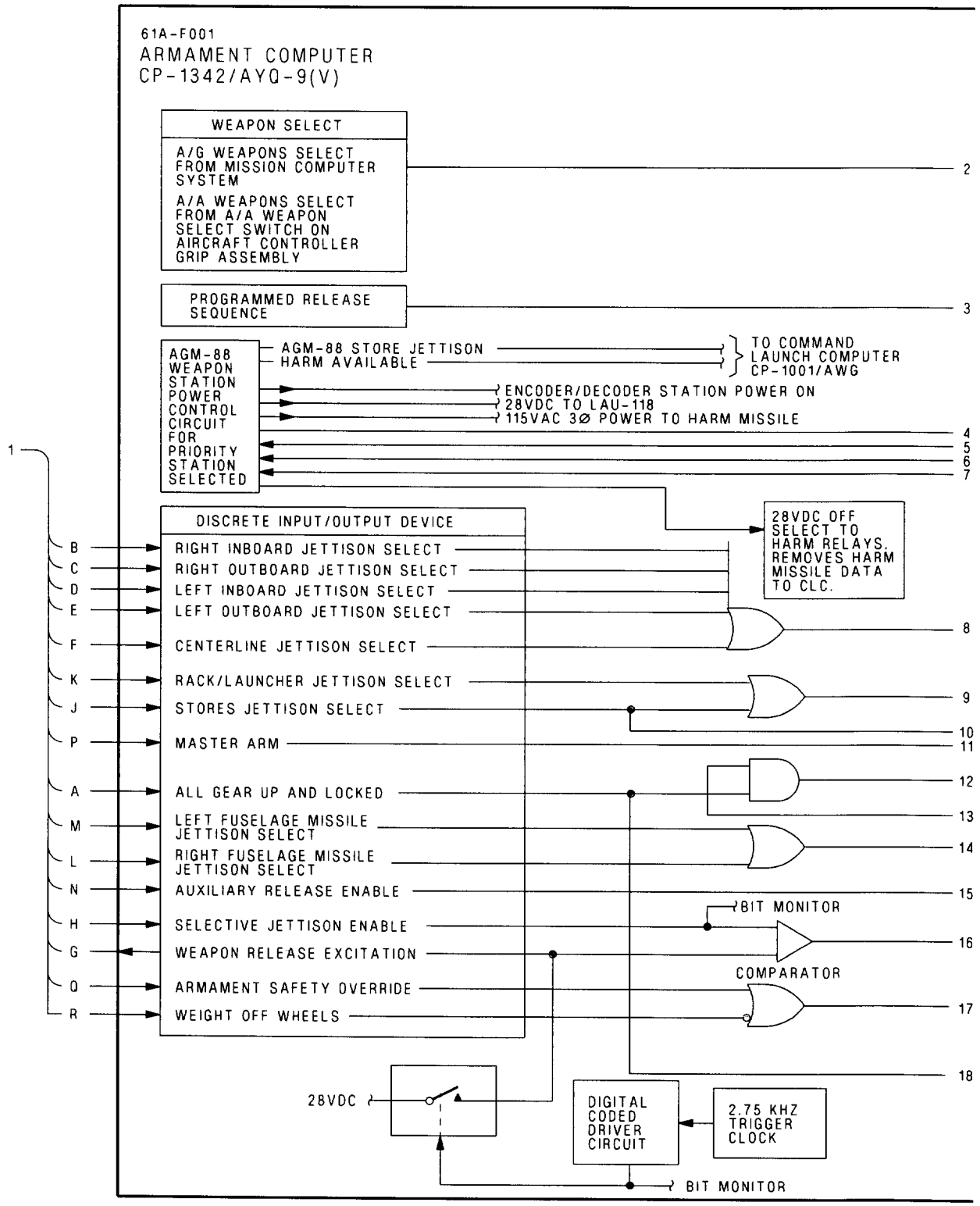
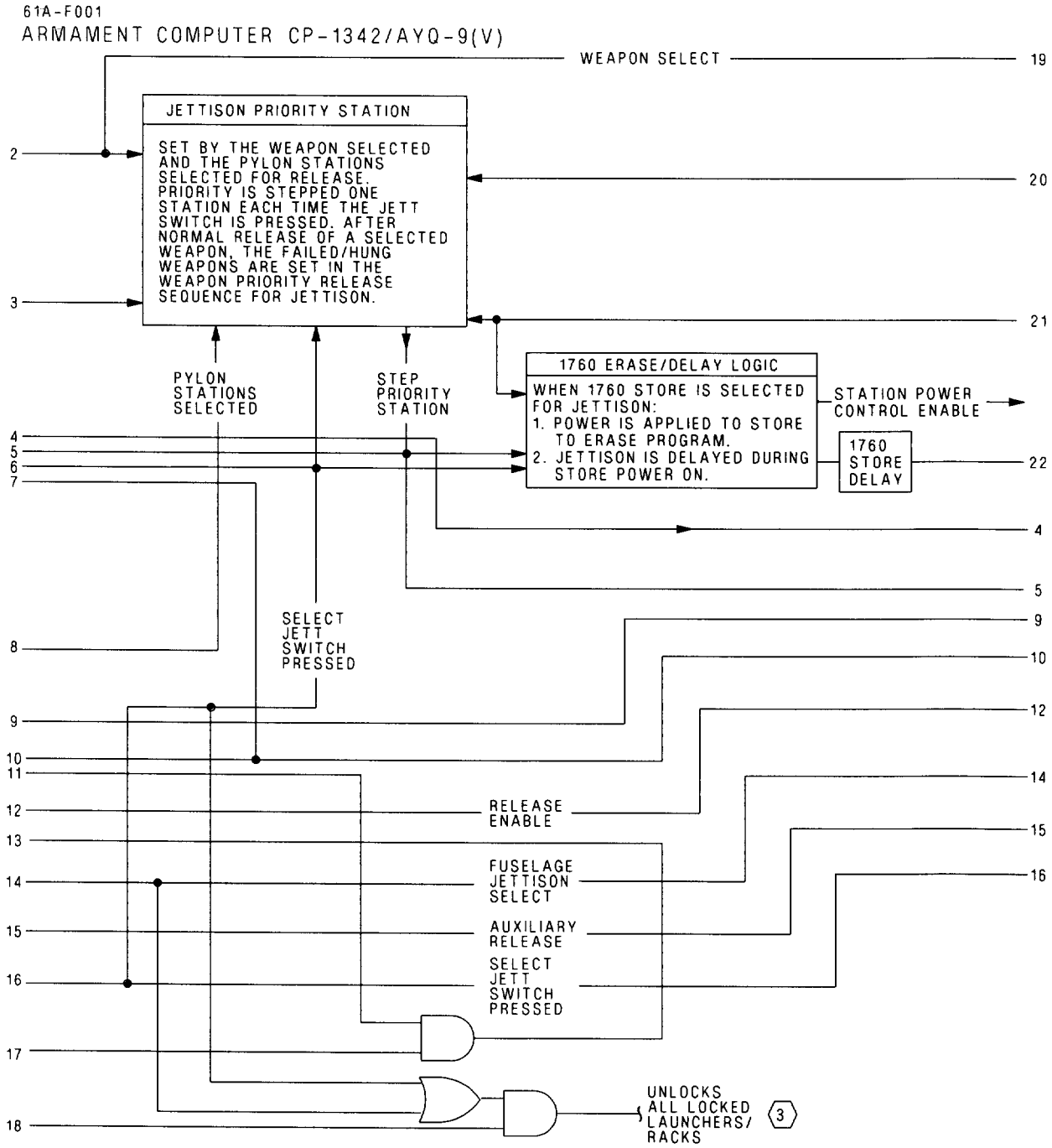


Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 2) 30010102



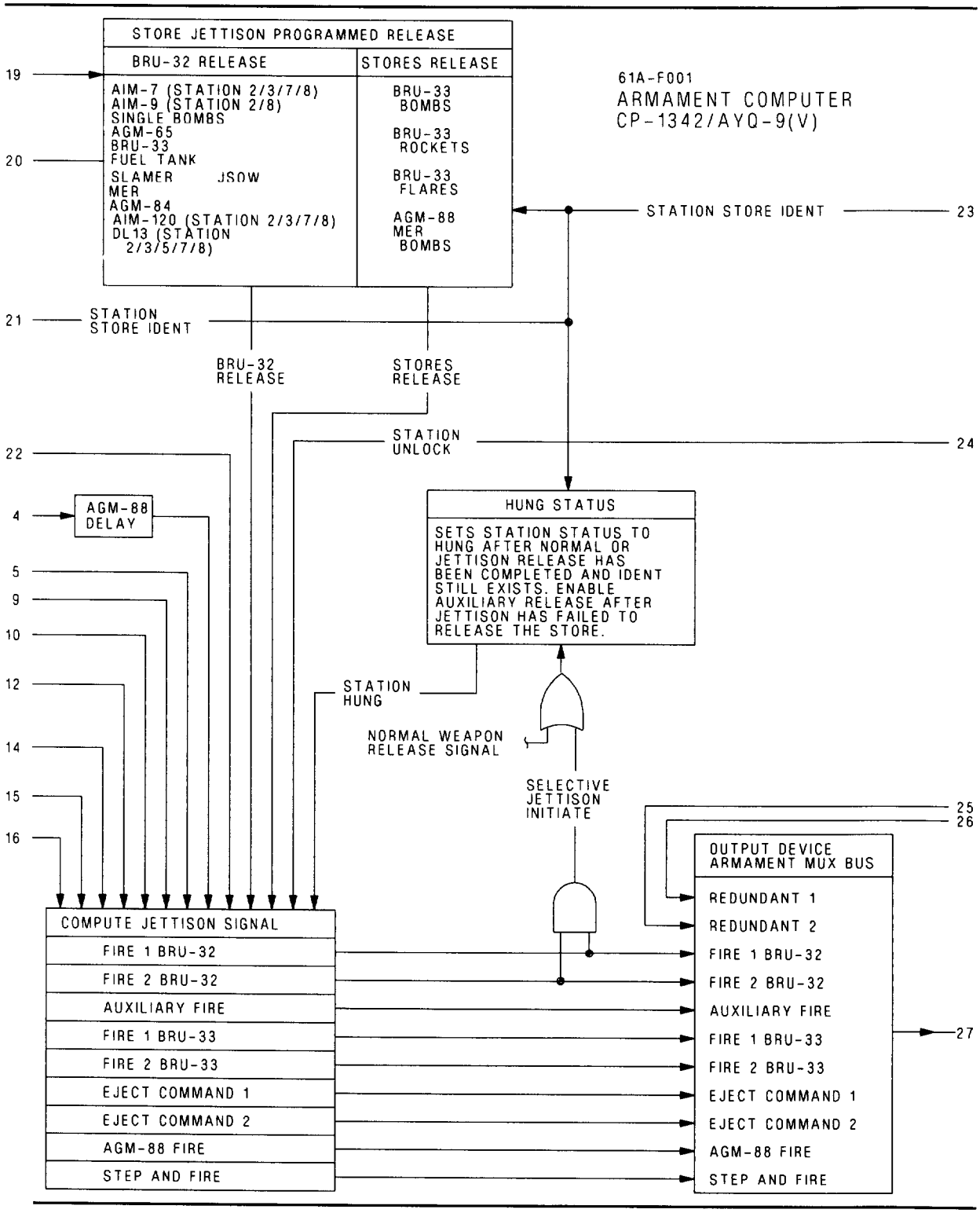
30010103

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 3)



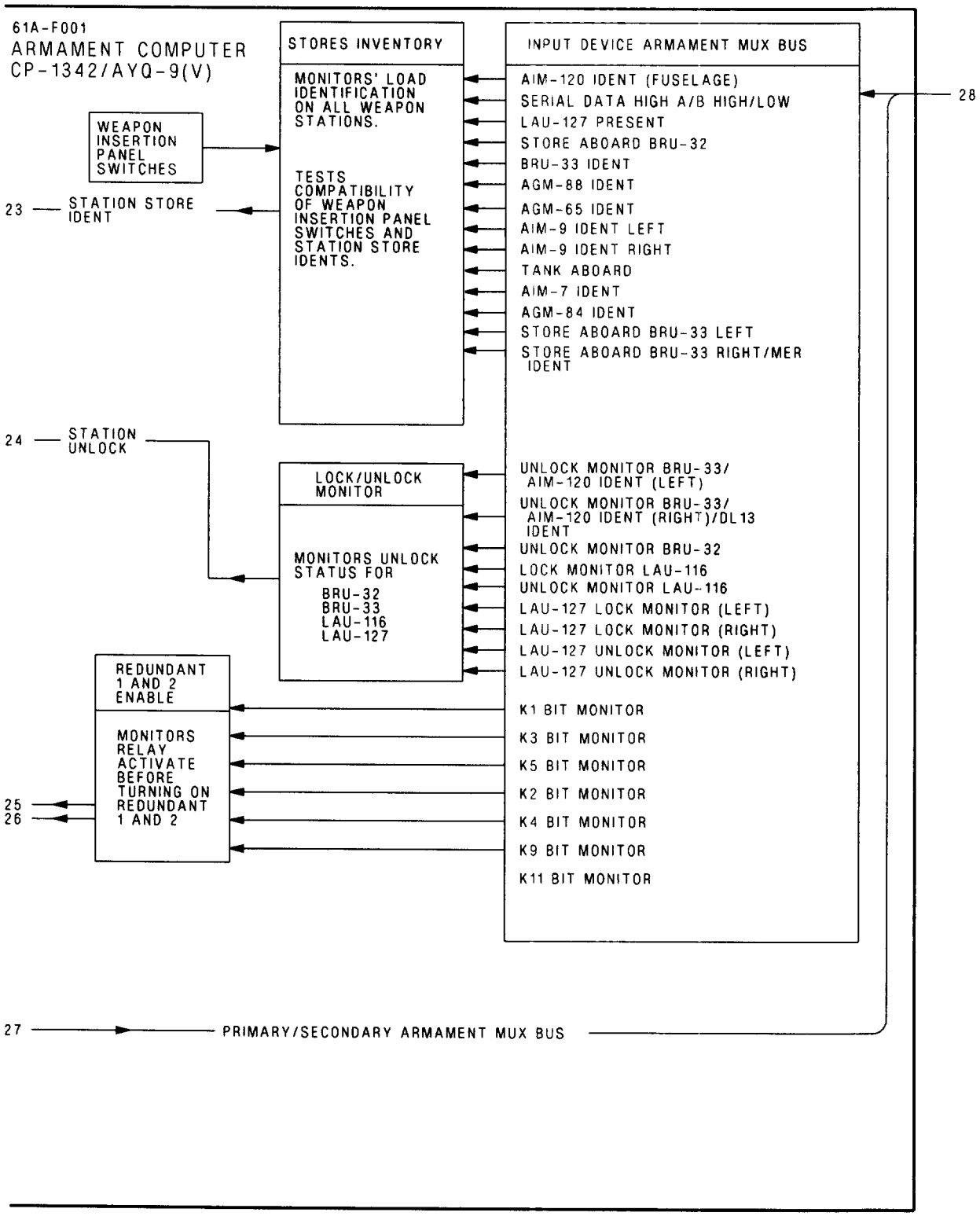
30010104

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 4)



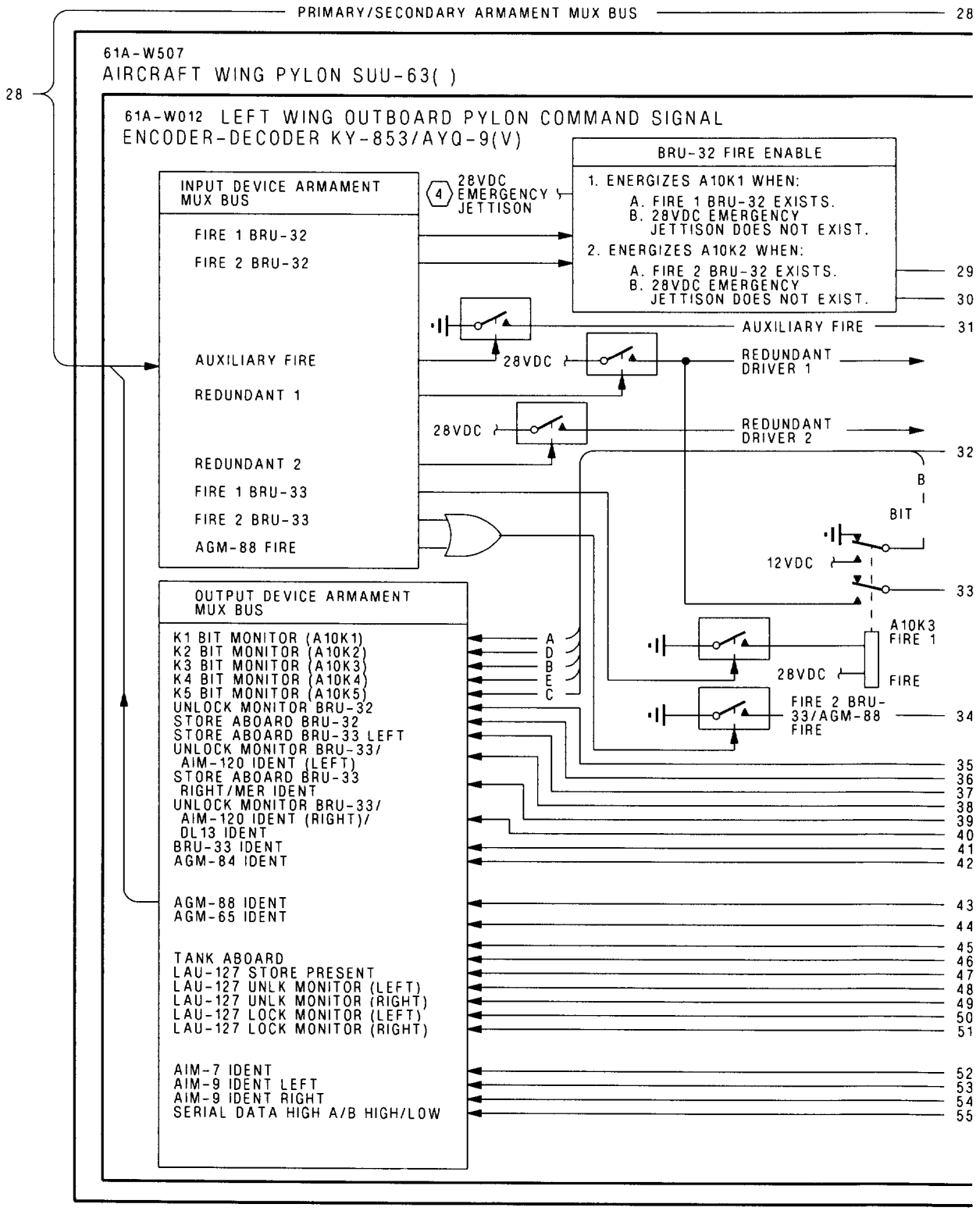
30010105

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 5)



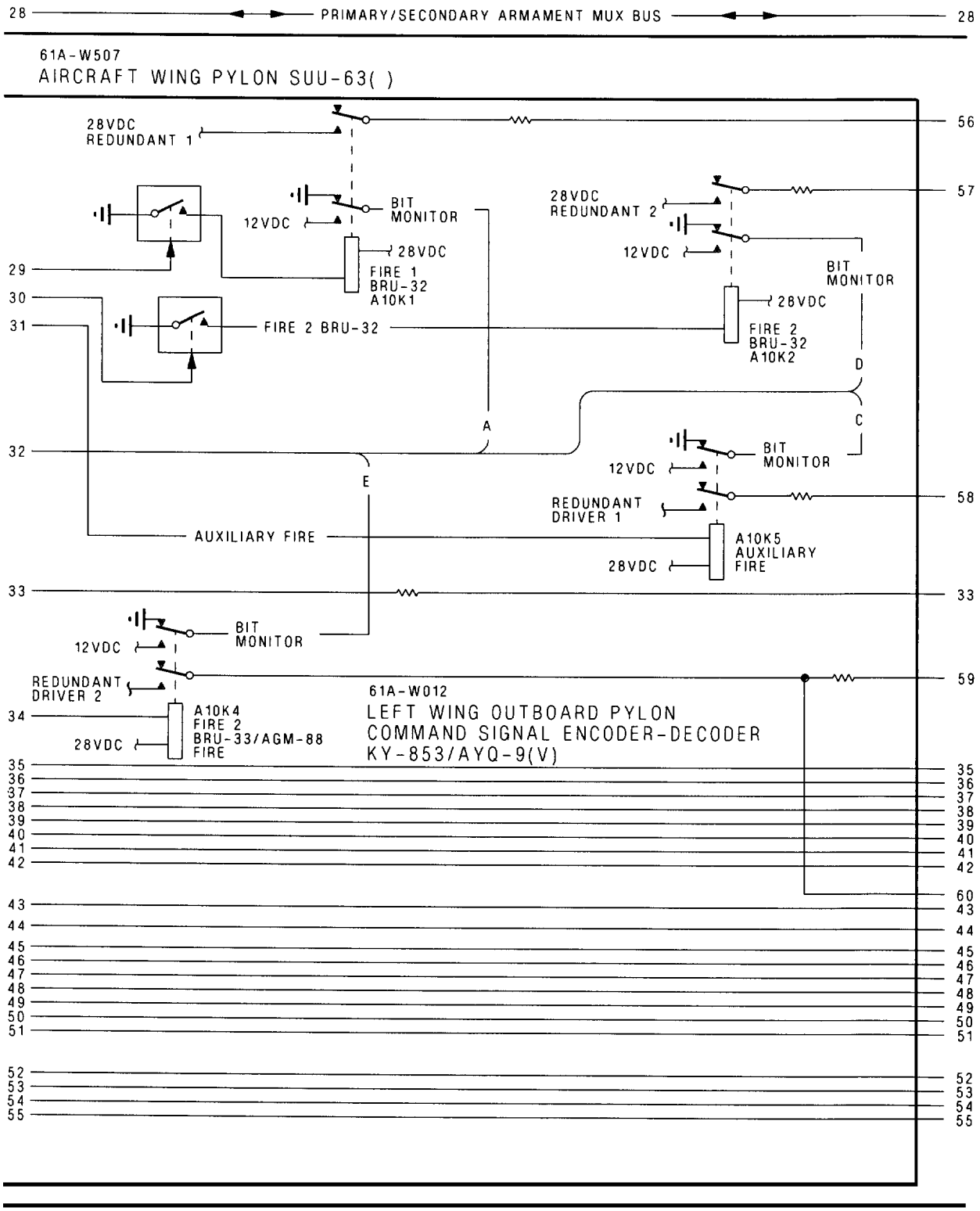
30010106

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 6)



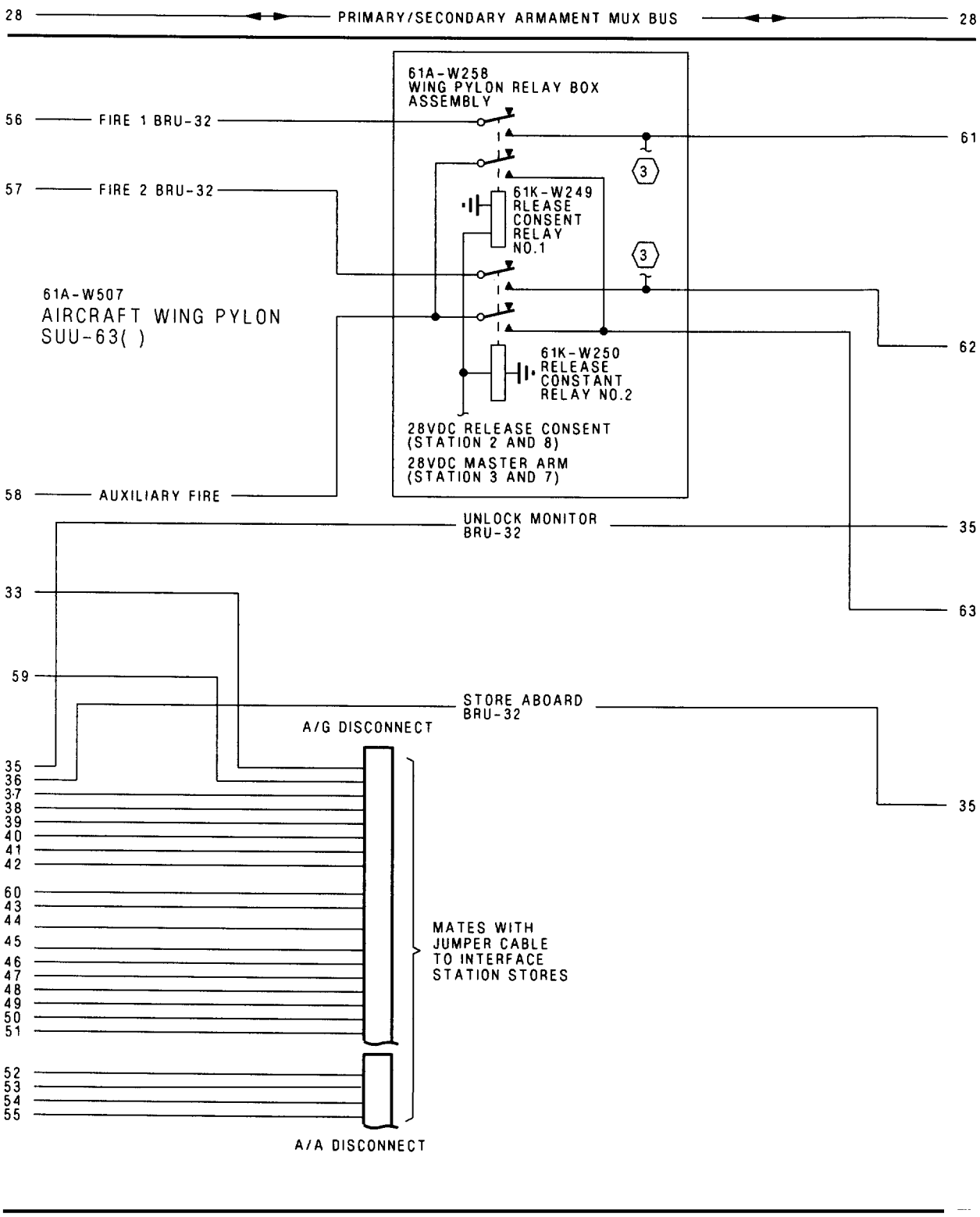
30010107

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 7)



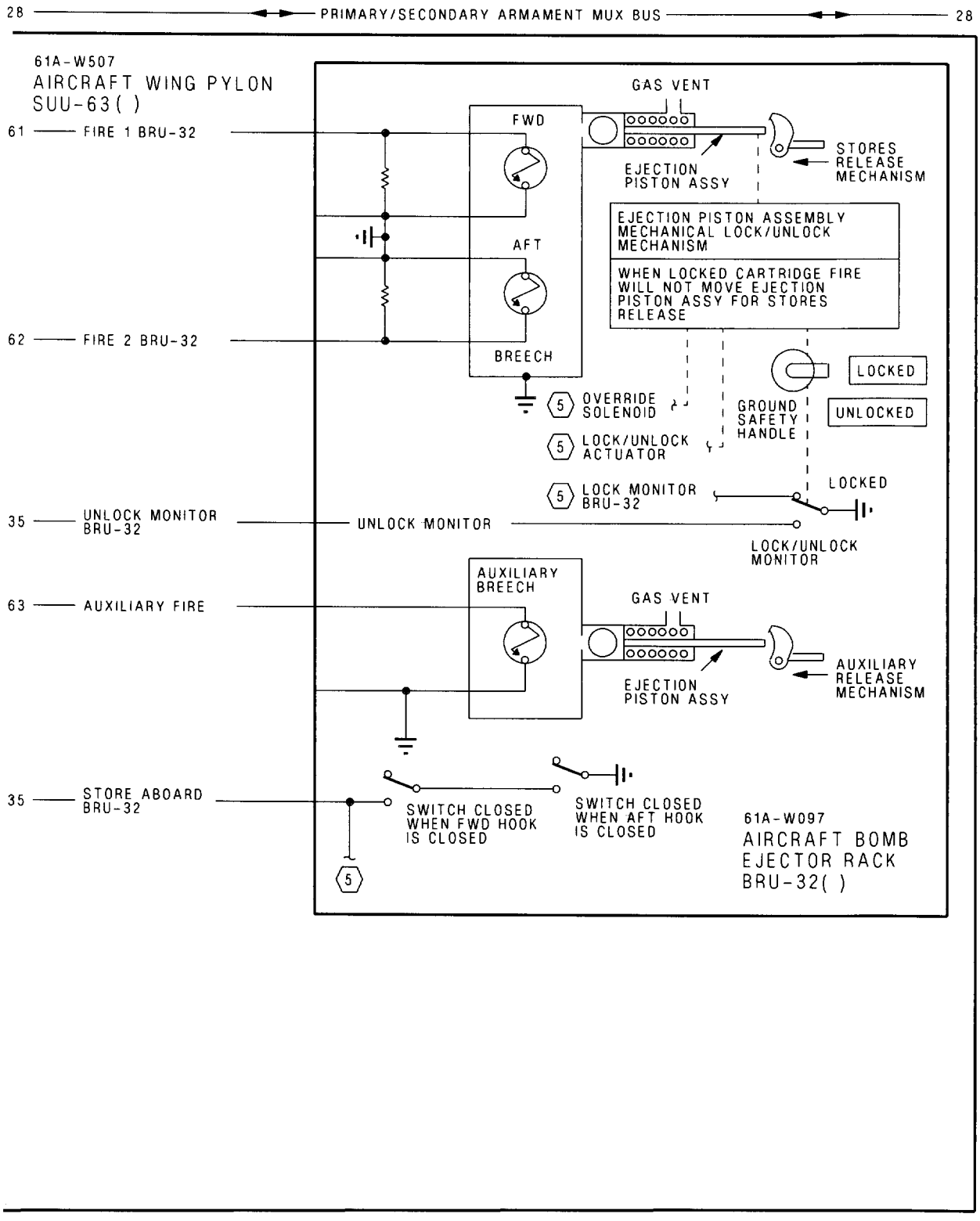
30010108

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 8)



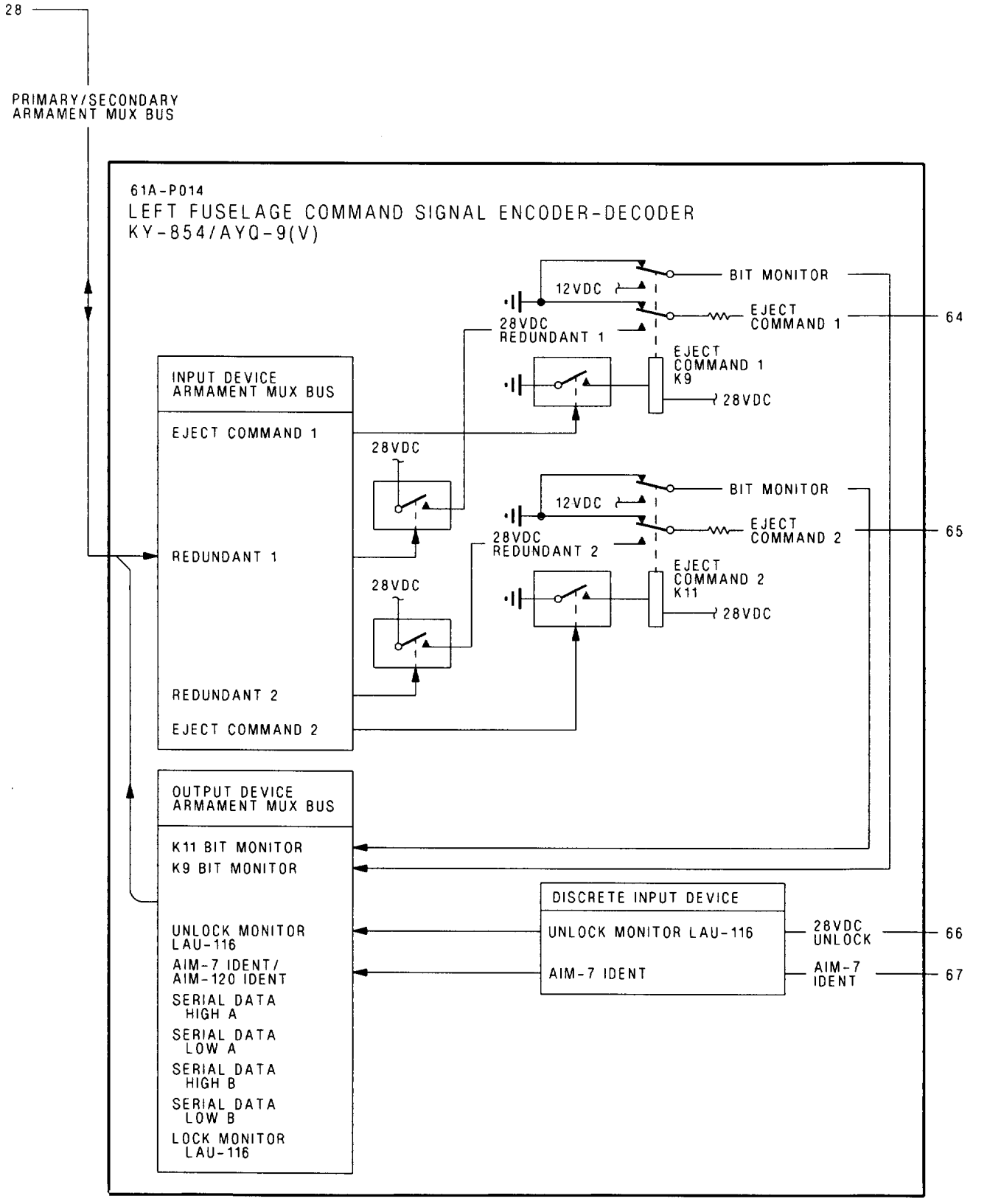
30010109

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 9)



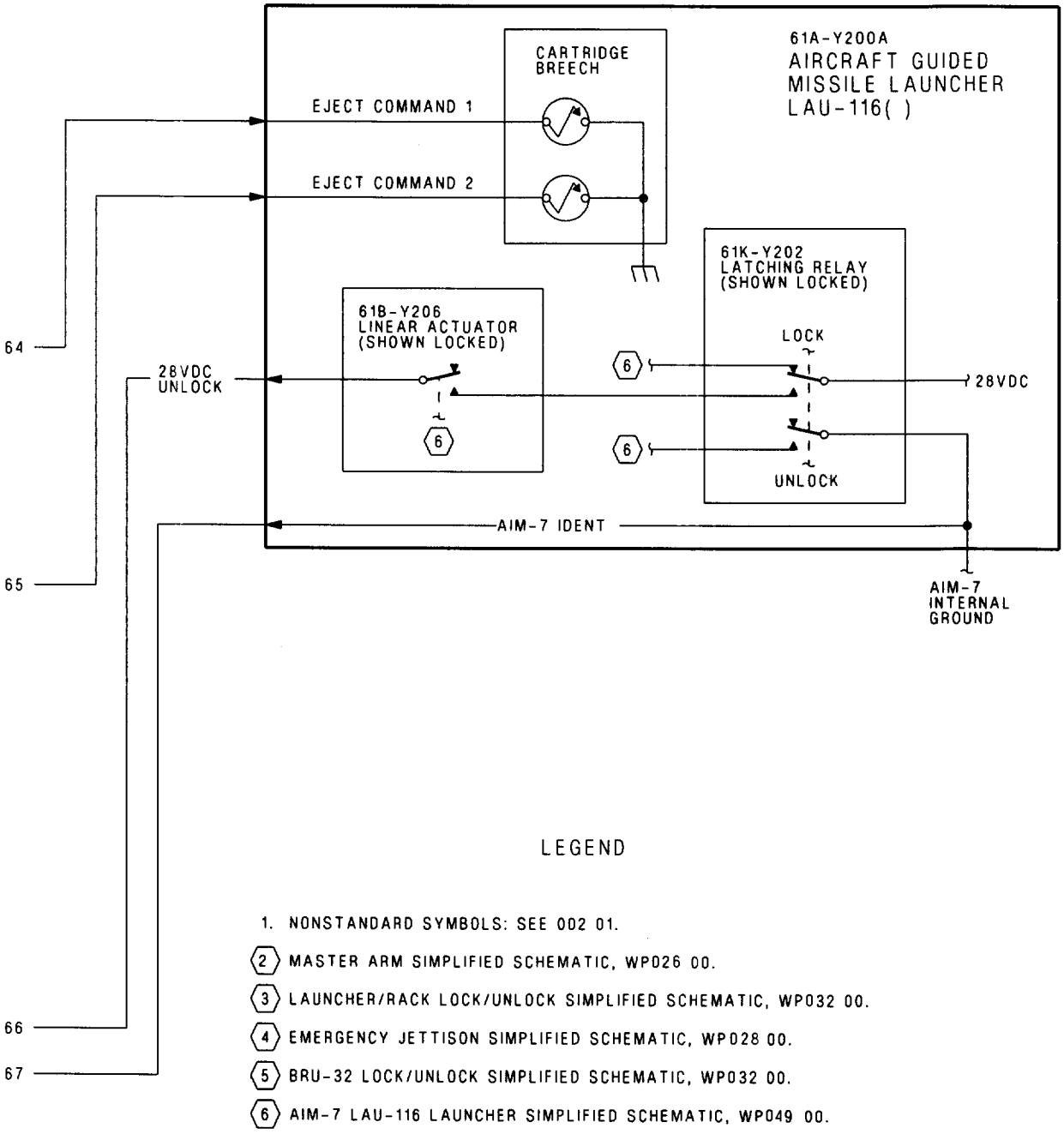
30010110

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 10)



30010111

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 11)



LEGEND

1. NONSTANDARD SYMBOLS: SEE 002 01.

(2) MASTER ARM SIMPLIFIED SCHEMATIC, WP026 00.

(3) LAUNCHER/RACK LOCK/UNLOCK SIMPLIFIED SCHEMATIC, WP032 00.

(4) EMERGENCY JETTISON SIMPLIFIED SCHEMATIC, WP028 00.

(5) BRU-32 LOCK/UNLOCK SIMPLIFIED SCHEMATIC, WP032 00.

(6) AIM-7 LAU-116 LAUNCHER SIMPLIFIED SCHEMATIC, WP049 00.

30010112

Figure 1. Selective Jettison/Auxiliary Release Simplified Schematic (Sheet 12)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - LAUNCHER/RACK LOCK/UNLOCK

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Launcher/Rack Lock/Unlock Simplified Schematic WP032 00
Weapon Control System A1-F18AC-740-110
AIM-120 AMRAAM Operation WP071 00
Weapon Control System A1-F18AC-740-500
Launcher/Rack Lock/Unlock Schematic WP020 00

Alphabetical Index

Subject	Page No.
Armament Computer Control	5
Lock Command	5
Stores Inventory Monitoring	5
Unlock Command	5
Simulation Mode	6
Introduction	2
Launcher/Rack Functions	2
BRU-32 Circuit	3
BRU-33 Circuit	4
LAU-115 and LAU-116 Circuits	5
Launcher/Rack Circuit Components	3
Lock/Unlock Circuit Power	2
Launcher/Rack Lock/Unlock Operation	2
Lock/Unlock Displays, Figure 1	9
Mission Computer System Control and Displays	6
Weapon Station Stores Lock/Unlock Functions, Table 1	6

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) launcher/rack lock/unlock operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP032 00 for the simplified launcher/rack lock/unlock schematic. The simplified schematic shows the launcher/rack lock/unlock operation. The schematic shows a typical pylon weapon station with a BRU-32, BRU-33 and LAU-115 installed. The schematic shows the input/output signals for the lock/unlock circuits of the launcher/rack. The Launcher/Rack Lock/Unlock Schematic (A1-F18AC-740-500, WP020 00) shows detailed launcher/rack lock/unlock operation.

4. Figure 1 shows displays related to launcher/rack lock/unlock operation.

5. Refer to WP014 00 for component locations.

6. LAUNCHER/RACK LOCK/UNLOCK OPERATION.

7. The SMS controls the lock/unlock circuits for the launcher/racks installed on weapon stations 2 through 8. The status of the lock/unlock circuits is monitored and sent to the mission computer (MC) system for display.

8. The SMS controls lock and unlock commands to the launchers and racks. Weapon stations 2 through 8 that have conventional stores loaded are controlled as a function of all gear up and locked, aircraft master mode and the SELECT JETT switch logic.

9. The armament computer sends lock/unlock commands to the weapon station command signal encoder-decoders by way of the armament mux bus. The encoder-decoders convert the mux bus commands to discrete drive signals and sends them to the launcher/rack. The lock/unlock circuit status is monitored and sent to the encoder-decoders. The encoder-decoders convert the discrete monitor signals to mux data and sends it to the armament computer.

10. The SMS controls the lock/unlock function of the launchers/racks listed below:

a. Aircraft Bomb Ejector Rack BRU-32( )

b. Aircraft Bomb Ejector Rack BRU-33( )

c. Aircraft Guided Missile Launcher LAU-115( )

d. Aircraft Guided Missile Launcher LAU-116( )

11. The lock/unlock commands for the Guided Missile Launcher LAU-127/A are a function of weapon release. This function is explained in detail in the AIM-9 Sidewinder Operation WP046 00 and AIM-120 AMRAAM Operation A1-F18AC-740-110, WP071 00.

12. Launcher/rack lock/unlock operation in this work package is listed below:

a. launcher/rack functions

b. armament computer control

c. mission computer system control and displays

13. **LAUNCHER/RACK FUNCTIONS.** When a launcher or rack is locked, the internal mechanical release mechanism is disabled. This safety function prevents a weapon from being released if a weapon release signal is sent to the weapon, launcher, or rack.

14. The lock/unlock mechanism is controlled by the functions listed below:

a. lock/unlock circuit power

b. launcher/rack circuit components

c. BRU-32 circuit

d. BRU-33 circuit

e. LAU-115 and LAU-116 circuits

15. **Lock/Unlock Circuit Power.** The lock/unlock circuits require 28vdc and store aboard/AIM-7 ident to operate. The electrical system sends 28vdc to the launcher/racks when electrical power is applied to the aircraft. The 28vdc is used by the actuator control relay and linear actuator motor drive and control function.

16. When an AIM-7 is loaded on a LAU-115 or LAU-116, the missile provides the AIM-7 ident ground for the lock/unlock circuit. When stores are loaded on a BRU-32 or BRU-33, the bomb rack provides a ground when the hooks are closed for the lock/unlock circuit.

17. **Launcher/Rack Circuit Components.** Components that make up the lock/unlock function in the launcher/racks are listed below:

a. actuator control relays

b. linear actuator

c. ground safety handle (BRU-32, BRU-33)

d. safety release knob (LAU-115, LAU-116)

e. lock override solenoid (BRU-32)

18. Actuator Control Relays. Power for the linear actuator is controlled by the actuator control relays. The relays have two latching coils; one for the lock function and one for unlock function. The weapon station encoder-decoders send the 28vdc lock/unlock commands as a function of armament computer logic.

19. Contacts of the actuator control relays control power to the linear actuator motor. One set of relay contacts is used with the linear actuator limit switches to provide the lock/unlock monitor signals.

20. Linear Actuator. The mechanical linkage used to lock and unlock the launcher/rack release mechanism is positioned by the linear actuator. The time required for the actuator to lock/unlock a launcher/rack is 10 seconds. The mechanical linkage also drives the ground safety handle/safety release knobs.

21. The linear actuator is driven by a motor that is part of the actuator. Actuator limit switches are used with the linear actuator control relay to enable/disable power to the motor and provide the lock/unlock monitor signals. Actuator limit switches change position at the end of the actuator travel.

22. Ground Safety Handle. The BRU-32 and left/right BRU-33 lock/unlock functions have ground safety handles. These handles can be set manually to LOCK or UNLOCK. The linear actuator can also drive the mechanical lock/unlock linkage to position the handles.

23. Ground safety handle switches provide the lock/unlock monitor signals for the encoder-decoder. One set of switches is used with the linear actuator limit switches and linear actuator control relay to apply power to the actuator motor.

24. Safety Release Knobs. LAU-115 and LAU-116 have safety release knobs that lock/unlock the launcher. These knobs are positioned manually or the linear actuator drives the mechanical linkage to lock/unlock. An indicator on the launcher shows the lock/unlock status.

25. Lock Override Solenoid. The BRU-32 lock/unlock circuit has the ability of overriding the rack lock mechanism. The lock override solenoid in the rack is energized to override rack lock mechanism. The solenoid is energized during emergency jettison or when the station lock oride-auto command is sent to the SMS from the MC system.

26. **BRU-32 Circuit.** The pylon weapon station encoder-decoders or right fuselage encoder-decoder control the BRU-32 when a store is loaded on the station. A simplified schematic of the BRU-32 lock/unlock function is in WP032 00.

27. The store aboard BRU-32 exists when a store is loaded on the BRU-32. Switches S4 and S3 close when the BRU-32 forward and aft hooks are closed. These switches provide a ground to the lock/unlock linear actuator and send the store aboard BRU-32 to the encoder-decoder.

28. On BRU-32, the lock and unlock coils of the actuator control relay are energized by 28vdc from the ground safety handle or a lock/unlock command from the encoder-decoder. When the forward and aft hooks are closed, switches S4 and S3 close providing a ground to the lock/unlock coils. Either function causes the linear actuator to drive to the selected position.

29. The simplified schematic shows the rack locked. When the ground safety handle is set to UNLOCKED, 28vdc BRU-32 is applied to the unlock coil of the relay through the closed contacts of the actuator limit switch. The relay energizes and sends 28vdc to the motor through another closed set of contacts of the actuator limit switch. The motor ground path is applied through the closed contacts of the actuator limit switch by the store aboard BRU-32 switches S3 and S4.

30. When the actuator drives to the unlock limit, the actuator limit switches change positions. When the limit switches change, a ground is applied to both sides of the motor.

31. If the unlock command is used to energize the unlock coil, the ground safety handle changes position from LOCKED to UNLOCKED. The blocking diodes isolate the 28vdc ground safety handle power from the lock/unlock commands from the encoder-decoder driver circuits.

32. The lock override solenoid in the rack operates independent of the lock/unlock circuits. When energized, the mechanical locked condition of the rack is overridden to enable the BRU-32 to release the store. When energized, the rack cannot be locked until the ground safety handle is reset.

33. **BRU-33 Circuit.** The pylon weapon station encoder-decoders or right fuselage encoder-decoder control the BRU-33 when a store is loaded on the station. A simplified schematic of the BRU-33 lock/unlock function is in WP032 00.

34. The store aboard BRU-33 left exists when a store is loaded on the BRU-33 left ejector unit. When the left ejector unit hooks are closed, the left store sensing switch no. 1 and no. 2 are closed. The left store sensing switch no. 1 sends the store aboard BRU-33 ground signal to the encoder-decoder. A ground signal is routed through the left store sensing switch no. 1 and no. 2 to the left lock/unlock linear actuator motor.

35. The store aboard BRU-33 right exists when a store is loaded on the BRU-33 right ejector unit. When the right ejector unit hooks are closed, the right store sensing switch no. 1 and no. 2 are closed. The right store sensing switch no. 2 sends the store aboard BRU-33 ground signal to the encoder-decoder. A ground signal is routed through the right store sensing switch no. 1 and no. 2 to the right lock/unlock linear actuator motor.

36. On BRU-33, when the lock command is received from the encoder-decoder, 28vdc power is applied to K1 left ejector unit actuator lock control relay and K4 right ejector unit actuator lock control relay. When the left ejector unit hooks are closed, the left store sensing switch no. 2 closes which provides a ground to K1 lock relay. When the right ejector unit hooks are closed, the right store sensing switch no. 1 closes which provides a ground to K4 lock relay. Lock relays K1 and K4 energize and provide 28vdc to the left/right lock/unlock linear actuator motor. The motor ground path is through the closed contacts of the left and right store sensing switches and through the closed contacts of the actuator limit switches to the motor.

37. When the actuator drives to the lock limit, the actuator limit switches change positions. When the limit switches change, a ground is applied to both sides of the motor.

38. On BRU-33, the simplified schematic shows the racks locked. When the left ground safety handle is set to UNLOCKED, 28vdc A/G is applied to K1 left ejector unit actuator unlock control relay. When the left ejector unit hooks are closed, left store sensing switch no. 2 is closed. This provides a ground to K1 relay. The K1 relay energizes and provides 28vdc power to the left linear actuator motor. The motor ground path is through the closed contacts of the left and right store sensing switches and through the closed contacts of the actuator limit switches to the motor. When the right ground safety handle is set to UNLOCKED, 28vdc A/G is applied to K4 right ejector unit actuator unlock control relay. When the right ejector unit hooks are closed, right store sensing switch no. 1 is closed. This provides a ground to K4 relay. The K4 relay energizes and provides 28vdc power to the right actuator motor. The motor ground path is through the closed contacts of the left and right store sensing switches and through the closed contacts of the actuator limit switch to the motor.

39. On BRU-33, when the unlock command is received from the encoder-decoder, 28vdc is applied to K1 left ejector unit actuator unlock control relay and K4 right ejector unit actuator unlock control relay. When the left ejector unit hooks are closed, left store sensing switch no. 2 provides a ground to the K1 relay. When the right ejector unit hooks are closed, right store sensing switch no. 1 provides a ground to the K4 relay. With 28vdc applied and the store sensing switches closed, unlock relays K1 and K4 energize and provide 28vdc to the left/right linear actuator motor. The motor ground path is through the closed contacts of the left and right store sensing switches and through the closed contacts of the actuator limit switches to the motor.

40. When the actuator drives to the unlock limit, the actuator limit switches change positions. When the limit switches change, a ground is applied to both sides of the motor.

41. If the unlock command is used to energize the unlock coil, the left and right ground safety handle changes position from LOCKED to UNLOCKED.

42. The unlock command blocking diode isolates the 28vdc ground safety handle power from the unlock commands from the encoder-decoder driver circuits.

43. **LAU-115 and LAU-116 circuits.** The circuits for both launchers are the same. A simplified schematic of the LAU-115 and LAU-116 lock/unlock function is in WP032 00.

44. When an AIM-7 is loaded on a launcher, the AIM-7 ident is sent to the weapon station encoder-decoders and a ground is applied to the lock/unlock circuit. The lock and unlock commands from the weapon station encoder-decoder energize the lock and unlock coils of the actuator control relay. The relay contacts apply 28vdc and ground to the linear actuator motor circuit. The ground is also sent through the monitor contacts of the limit switches on the actuator, to the lock/unlock monitor circuit in the encoder-decoder.

45. The lock/unlock status is controlled by the relay contacts and limit switches on the actuator. The safety release knob is positioned by the actuator or can be manually positioned. The lock/unlock indicator shows the position of the safety release knob.

46. **ARMAMENT COMPUTER CONTROL.** The lock/unlock functions of the SMS are controlled by the armament computer. Control functions for launcher/rack lock/unlock are listed below:

a. lock command

b. unlock command

c. stores inventory monitoring

d. simulation mode

47. **Lock Command.** On initial power-up with weight on wheels, the armament computer sends lock commands to weapon station encoder-decoders locking all existing racks, launchers with stores aboard. The encoder-decoders enable 28vdc drivers that send power to the launcher/rack linear actuator control relay. The control relay energizes and drives the actuator to the locked position. When a store is sensed on station 2, 3, 5, 7 or 8 and the armament computer weapon code is set to no store or a spare code, the SMS maintains the locked condition of the rack during all aircraft operations except emergency jettison. The lock command is also set when racks/launchers are unlocked and the all gear up and locked discrete changes from true to false.

48. **Unlock Command.** The SMS requires that the aircraft landing gear be up and locked to command unlocking of each rack and launcher aboard. Unlocking also requires that a store be aboard the rack or launcher. The logic for unlock commands is controlled by the armament computer. The store ident, and all gear up and locked discrete determine the unlock commands. Table 1 shows the launchers, rack and store that lock/unlock as a function of the store idents for conventional weapons.

49. When A/A mode is selected and all gear up and locked is true, then the unlock command is sent to the weapon stations with A/A weapons aboard. When A/G mode is selected on MASTER ARM control panel assembly and all gear up and locked is true, then the unlock command is sent to the weapon stations with A/G weapons aboard. Weapon stations 5 and 6 both unlock when either A/A or A/G is selected. They are both controlled by the same driver circuit in the right fuselage encoder-decoder.

50. On the LH vertical console control panel, when SELECT JETT switch is set to any position other than SAFE, all launchers/racks will unlock.

51. **Stores Inventory Monitoring.** The store inventory function provides the store idents and lock/unlock monitoring. When a store aboard is sensed on station 2, 3, 5, 7 or 8 and the store code for that station is either no store or a spare code, the armament computer keeps a locked condition of the rack in all aircraft operations except emergency jettison.

52. The armament computer updates the launcher/rack lock/unlock status at the times listed:

a. power up

b. gear up

c. periodic BIT

d. after trigger signals or weapon release signals and prior to fire signals

e. gear down

f. aircraft master mode change

53. The lock/unlock status for all stations is sent to the MC system for the display logic. Internal functions of the armament computer use the lock/unlock status to enable release logic and control the lock/unlock commands. If a BRU-32 fails to unlock when the unlock command is sent to the weapon station, the armament computer sends a lock override option to the MC system.

54. **Simulation Mode (SIM).** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. When simulation mode is selected all launchers/racks are locked. For detailed description of SIM mode operation refer to WP026 01.

55. **MISSION COMPUTER SYSTEM CONTROL AND DISPLAYS.** The SMS sends lock/unlock status to the MC system for the stations with weapons. The MC system receives the data and provides the display logic for LKD/ULK and the lock override option. The MC system sends the logic output to the multipurpose display group for display. Figure 1 shows typical displays for lock/unlock.

56. **Displays.** The displays for the lock/unlock functions of the SMS are listed below:

a. conventional stores LKD/ULK display

b. non-dropable

c. lock override option

57. Conventional Stores LKD/ULK Display. The MC system logic displays ULK for the station status for stations that are not locked when all gear up and locked is not true. LKD is displayed for stations that do not unlock with all gear up and locked set true. The LKD status is displayed when the locked launcher/rack will disable the normal release function of the weapon on the station.

58. LKD status for a BRU-33 is displayed when either of the lock/unlock circuits fail. The SMS releases the unlocked store and disables release of the locked store as a function of station status release logic.

59. Non-dropable Stores LKD/ULK/TSN display shows the status of the BRU-32. Lock status (LKD/ULK/TSN) is always displayed for weapon stations with fuel tanks, regardless of gear status (up or down).

60. Lock Override Option. The SMS sends the lock override option to the MC system when any BRU-32 with a store loaded fails to unlock. The MC system receives the signal and enables the UNLK pushbutton switch option on the stores display.

61. This pushbutton switch option is displayed when a station with conventional stores does not unlock at all gear up and locked.

62. Pressing the UNLK pushbutton switch sends the station lock oride-auto signal to the MC system. The MC system sends the signal to the armament computer. The armament computer sends the signal on the armament mux bus to the encoder-decoder for the locked weapon stations. The encoder-decoder enables the lock override command to energize the lock override solenoid in the BRU-32.

Table 1. Weapon Station Stores Lock/Unlock Functions

Store Ident(s)	Weapon Station Numbers	Lock/Unlock Commands
AIM-7 Ident (Fuselage)	4/6	LAU-116
AIM-7 Ident and Store Aboard BRU-32 (Pylon)	2/8 [3] 3/7	LAU-115 and BRU-32
AIM-9 Left Ident or AIM-9 Right Ident and Store Aboard BRU-32 (Pylon)	2/8	BRU-32
AIM-120 Ident (fuselage) [3]	4/6	LAU-116

Table 1. Weapon Station Stores Lock/Unlock Functions (Continued)

Store Ident(s)	Weapon Station Numbers	Lock/Unlock Commands
AIM-120 Left Ident or AIM-120 Right Ident and store Aboard BRU-32 (Pylon) [3]	2/3/7/8	BRU-32
Store Aboard left BRU-33/Store Aboard right BRU-33, BRU-33 Ident and Store Aboard BRU-32	2/3/5/7/8	BRU-33 left/BRU-33 right and BRU-32
AGM-45 Shrike Ident and store aboard BRU-32 [2]	2/3/7/8	BRU-32
AGM-65 Maverick Ident and Store Aboard BRU-32	2/3/7/8	BRU-32
AGM-84 Harpoon Ident and Store Aboard BRU-32	2/3/7/8	BRU-32
AGM-88 Harm Ident and Store Aboard BRU-32	2/3/7/8	BRU-32
AGM-154 JSOW Ident and store aboard BRU-32 [3]	2/3/7/8	BRU-32
GBU-31 JDAM Ident and Store Aboard BRU-32 [3]	2/3/7/8	BRU-32
Advanced D/L Pod Ident and Store Aboard BRU-32 [3]	2/3/5/7/8	BRU-32
Tank Ident and Store Aboard BRU-32	3/5/7	BRU-32
Store Aboard BRU-32 (single bombs)	2/3/5/7/8	BRU-32
Store Aboard BRU-32 (Mines)	2/3/5/7/8	BRU-32
Store Aboard BRU-32, Store Aboard BRU-33 Right (Multiple Ejector Rack, Improved Multiple Ejector Rack/Improved Triple Ejector Rack)	2/3/5/7/8	BRU-32
AGM-84E SLAM Ident and Store Aboard BRU-32 [1]	2/3/7/8	BRU-32

Table 1. Weapon Station Stores Lock/Unlock Functions (Continued)

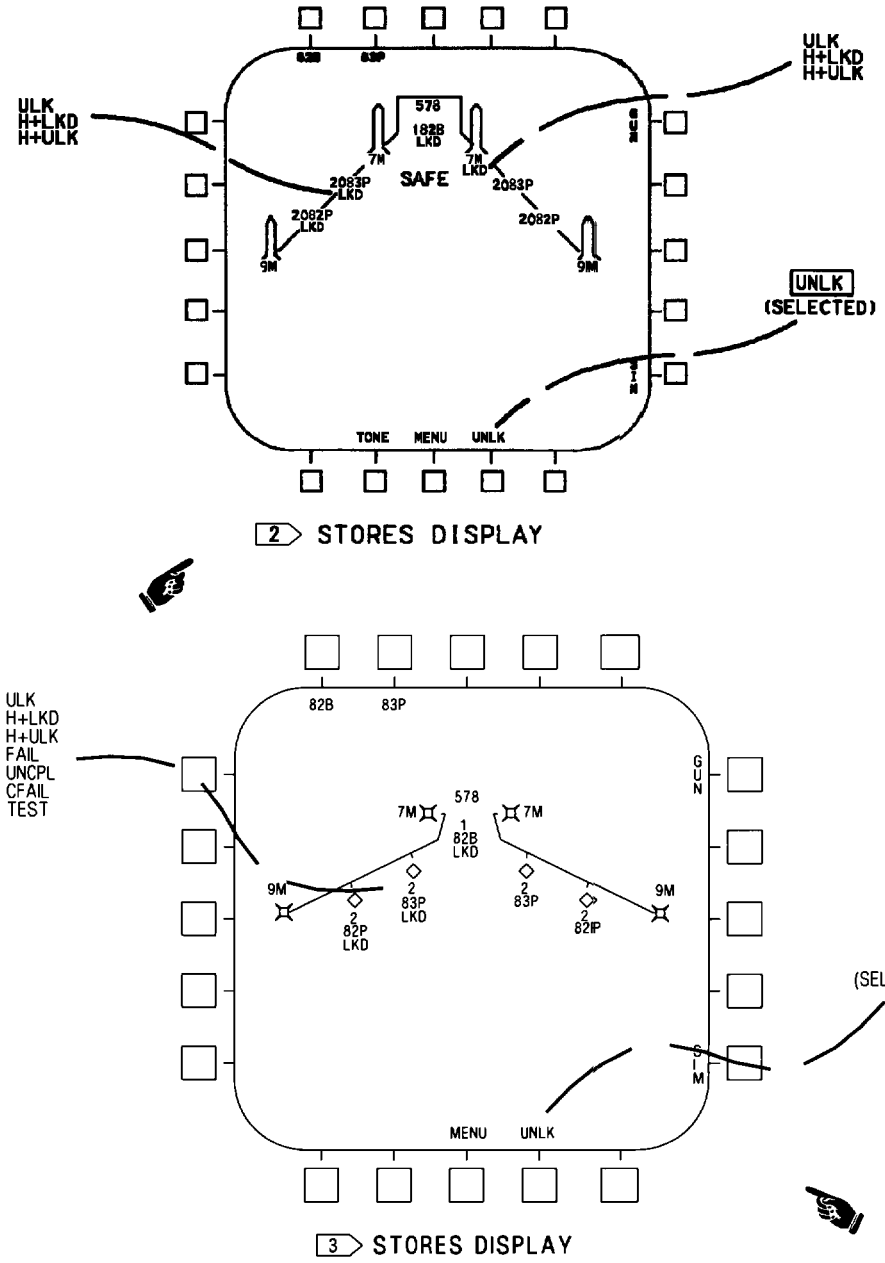
Store Ident(s)	Weapon Station Numbers	Lock/Unlock Commands
AGM-84H SLAM ER Ident and Store Aboard BRU-32 3	2/3/7/8	BRU-32

NOTES

1 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

2 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

3 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.



LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

3 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

031001

Figure 1. Lock/Unlock Displays

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS-LAUNCHER/RACK LOCK/UNLOCK SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

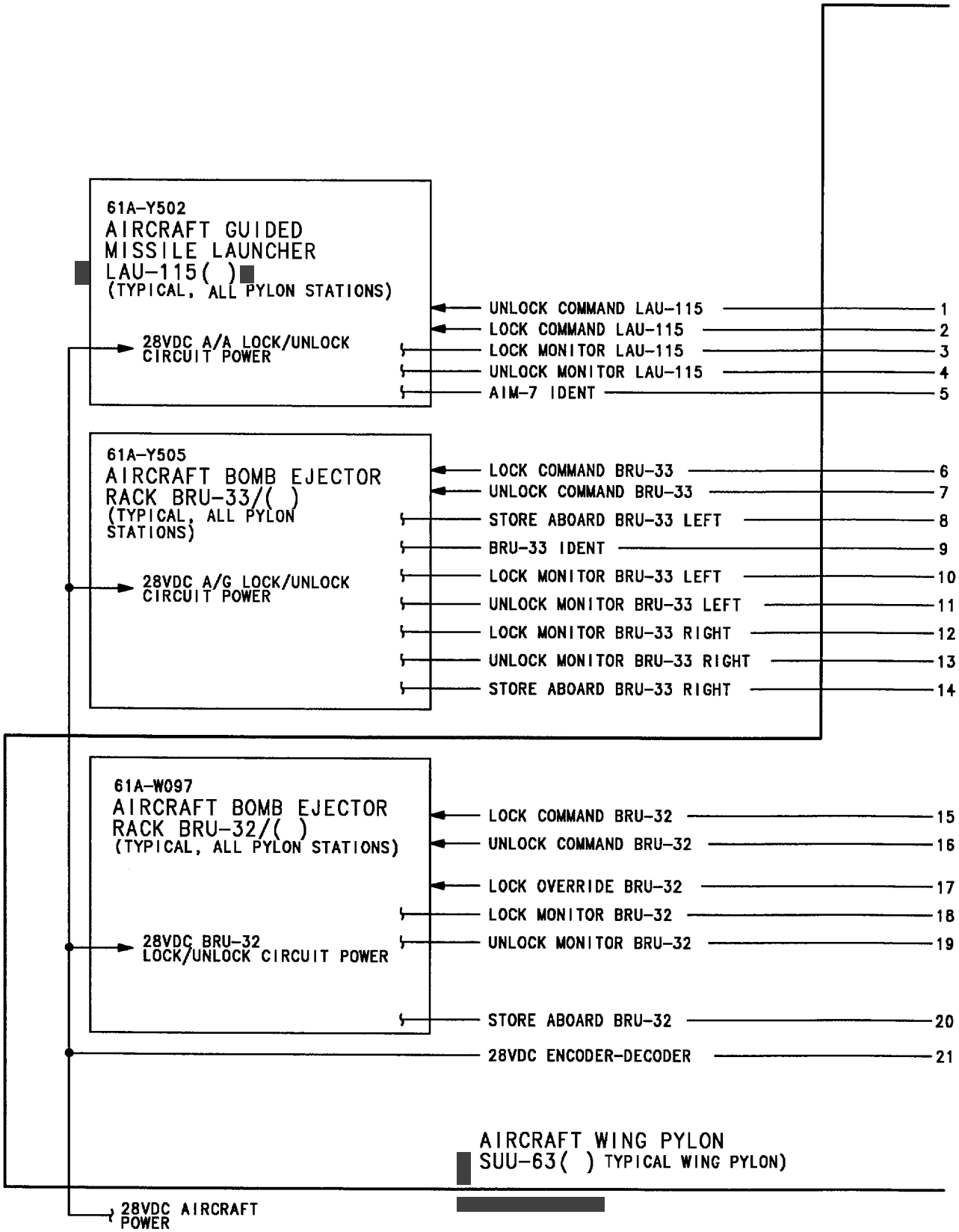
Subject	Page No.
BRU-32 Lock/Unlock Simplified Schematic, Figure 2	10
BRU-33 Lock/Unlock Simplified Schematic - Part Number J014000-525, AND -535, Figure 4	12
Introduction	1
LAU-115 and LAU-116 Lock/Unlock Simplified Schematic, Figure 3	11
Launcher/Rack Lock/Unlock Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 27	-	Leading Edge Flap/Control Stick Changes (ECP MDA-F/A-18-00044)	15 Nov 86	ECP Coverage Only

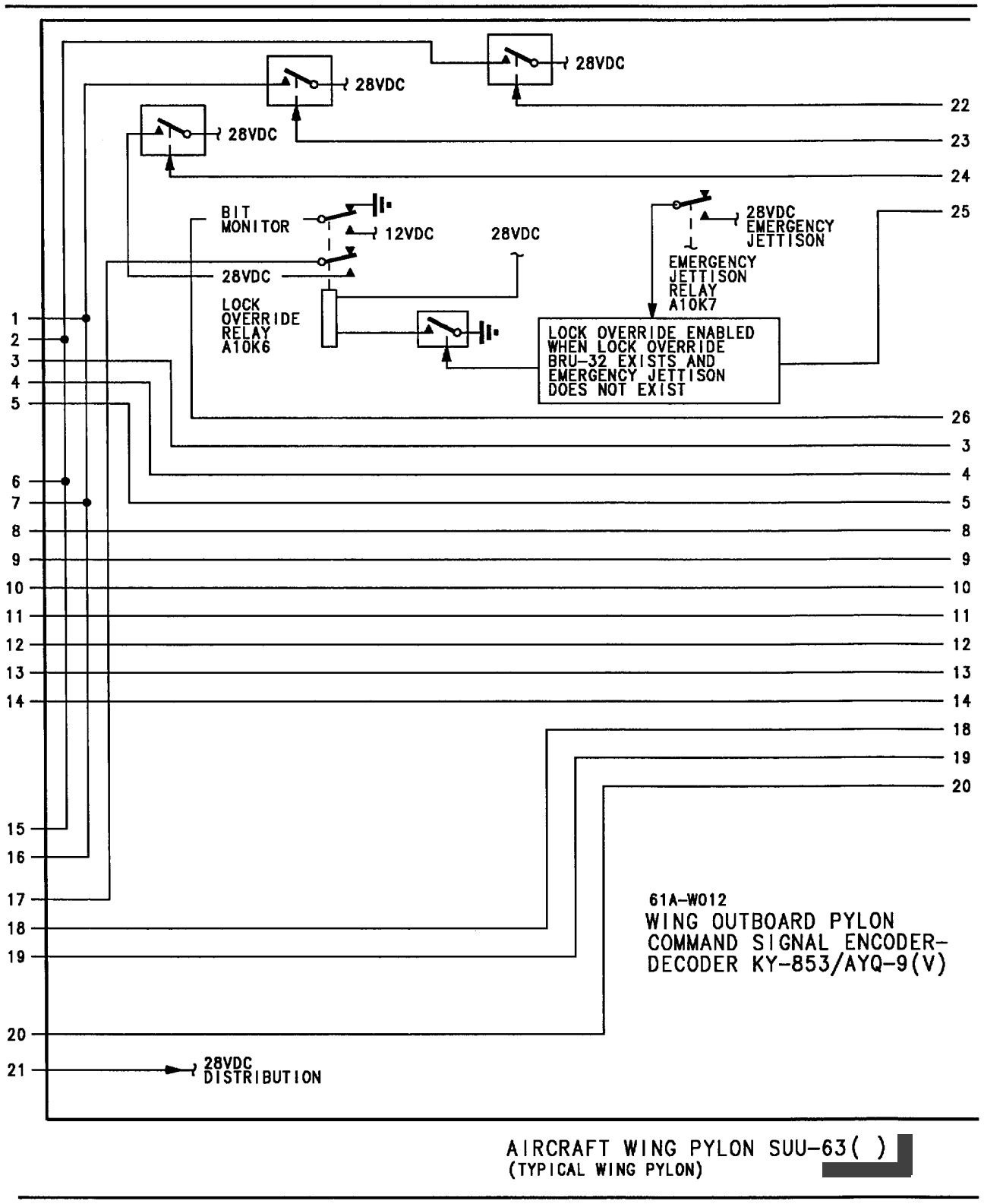
1. INTRODUCTION.

2. The schematics in this work package are provided to support the data in WP031 00.



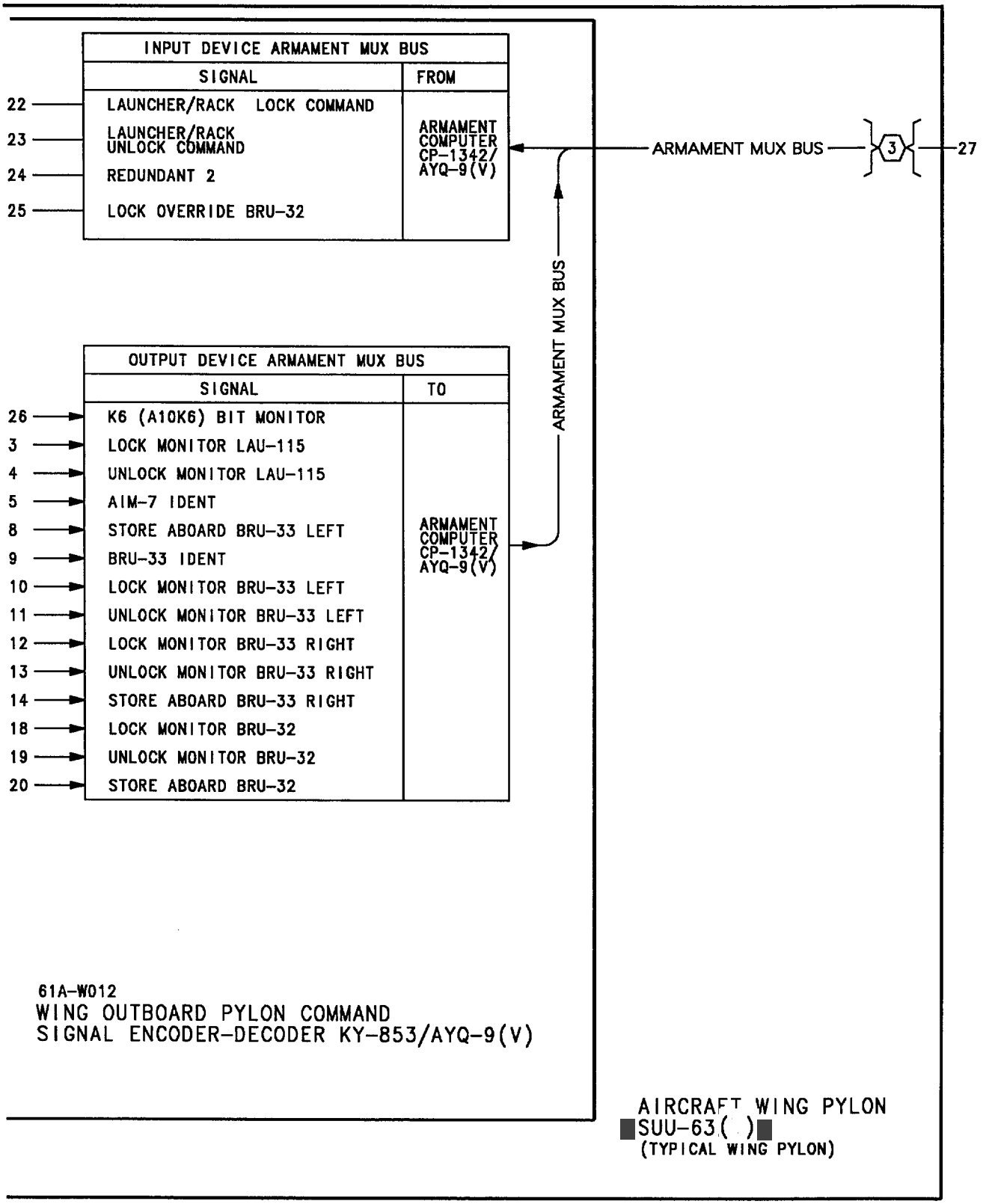
03200101

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 1)



03200102

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 2)



03200103

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 3)

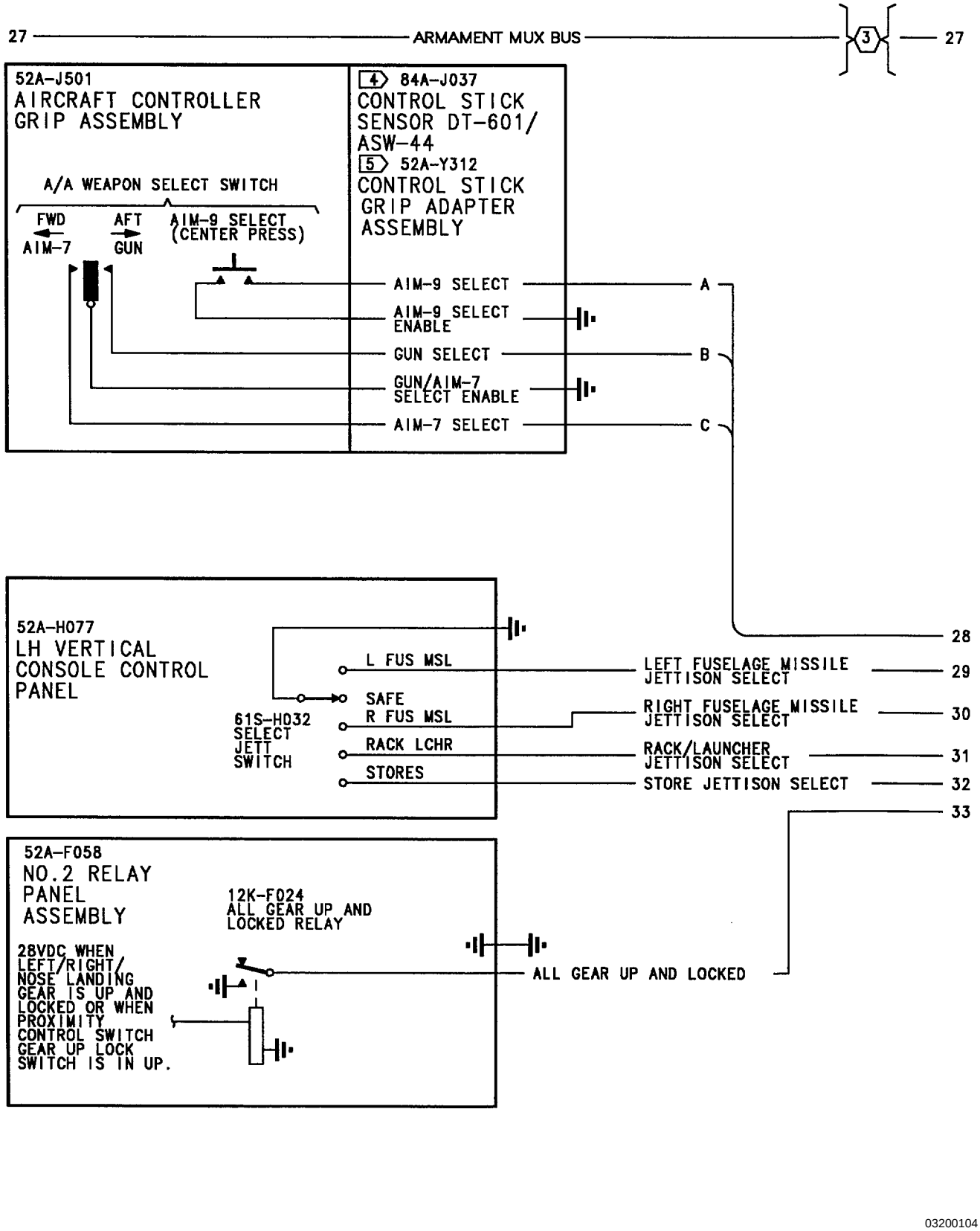
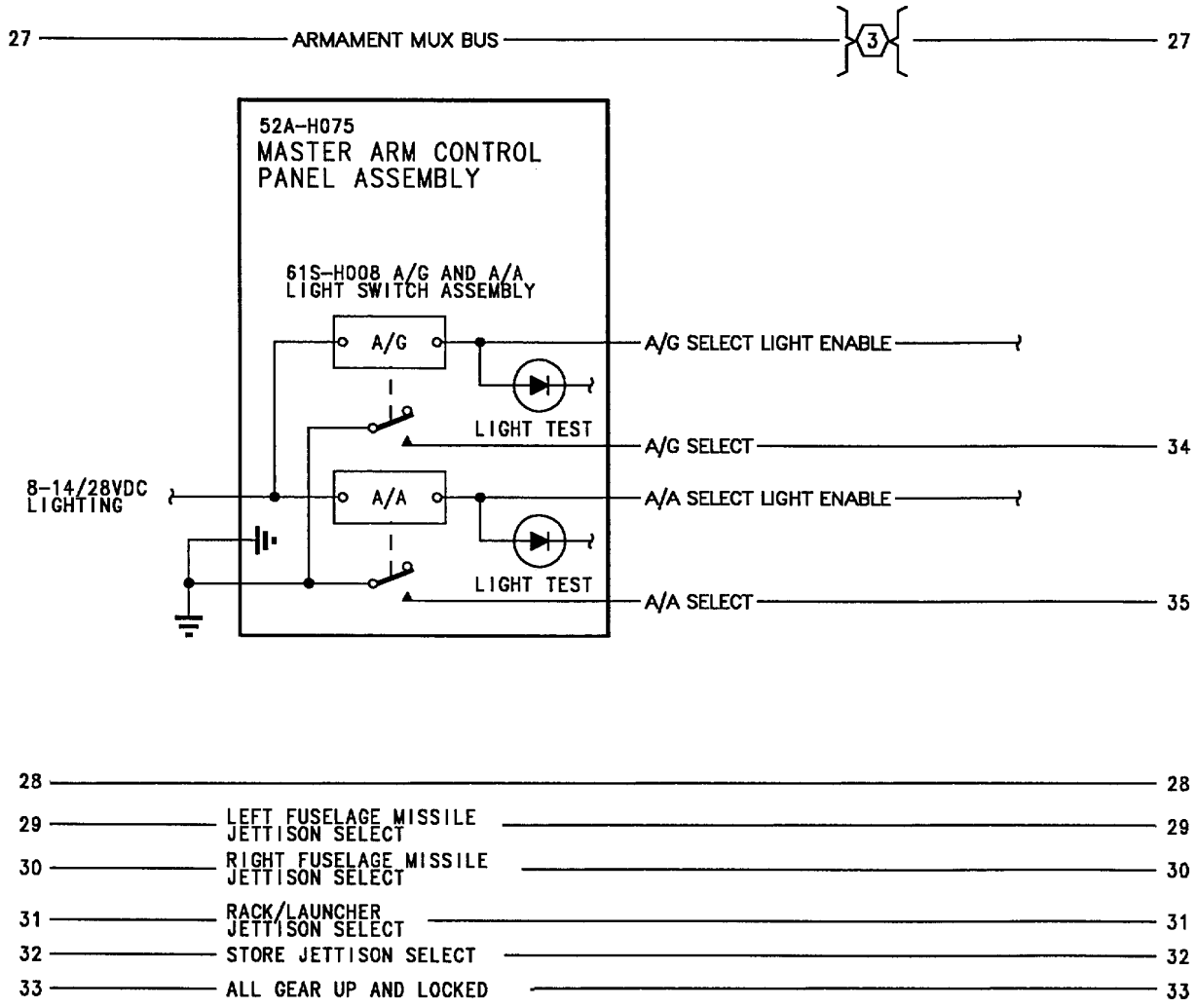


Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 4)



03200105

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 5)

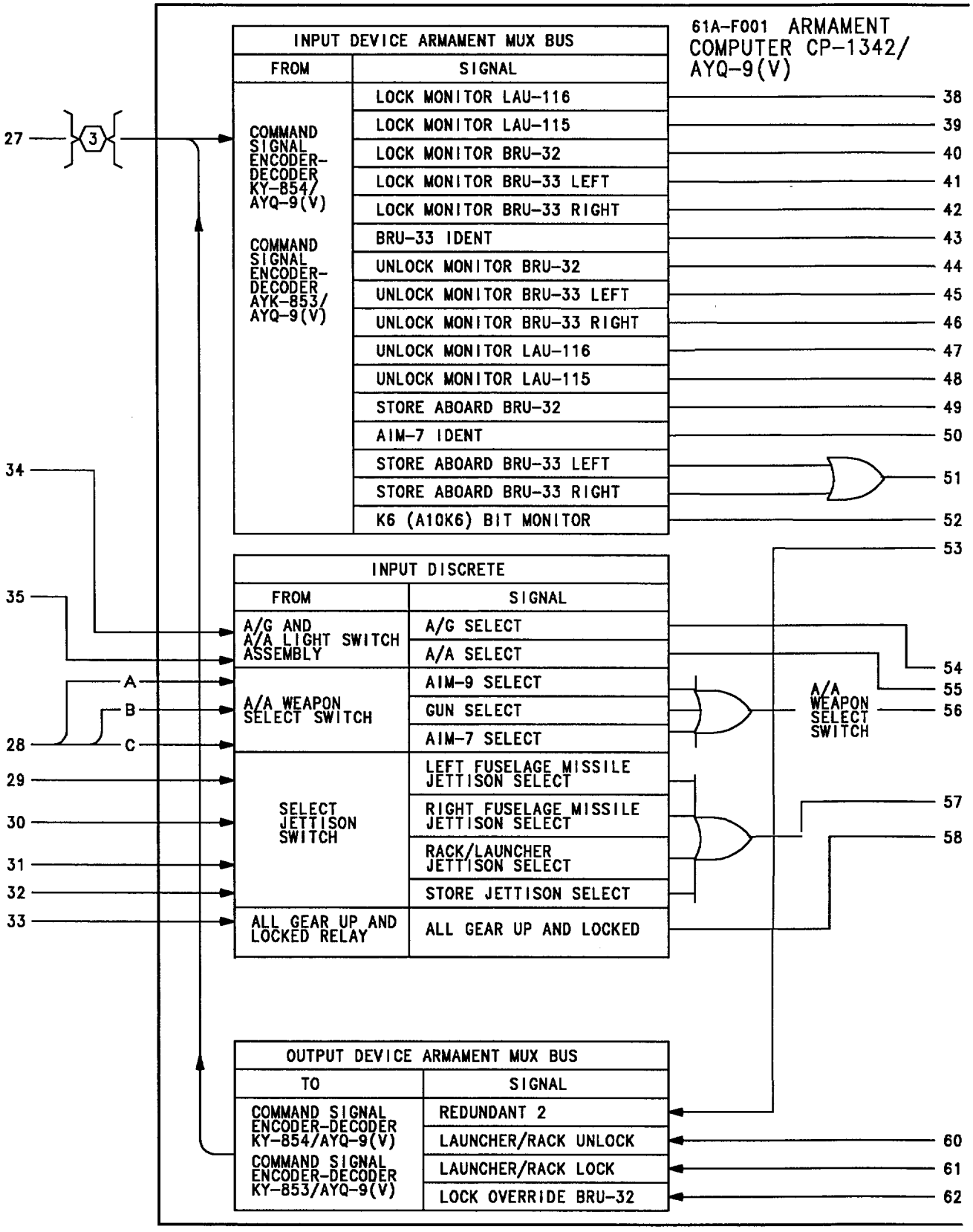


Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 6)

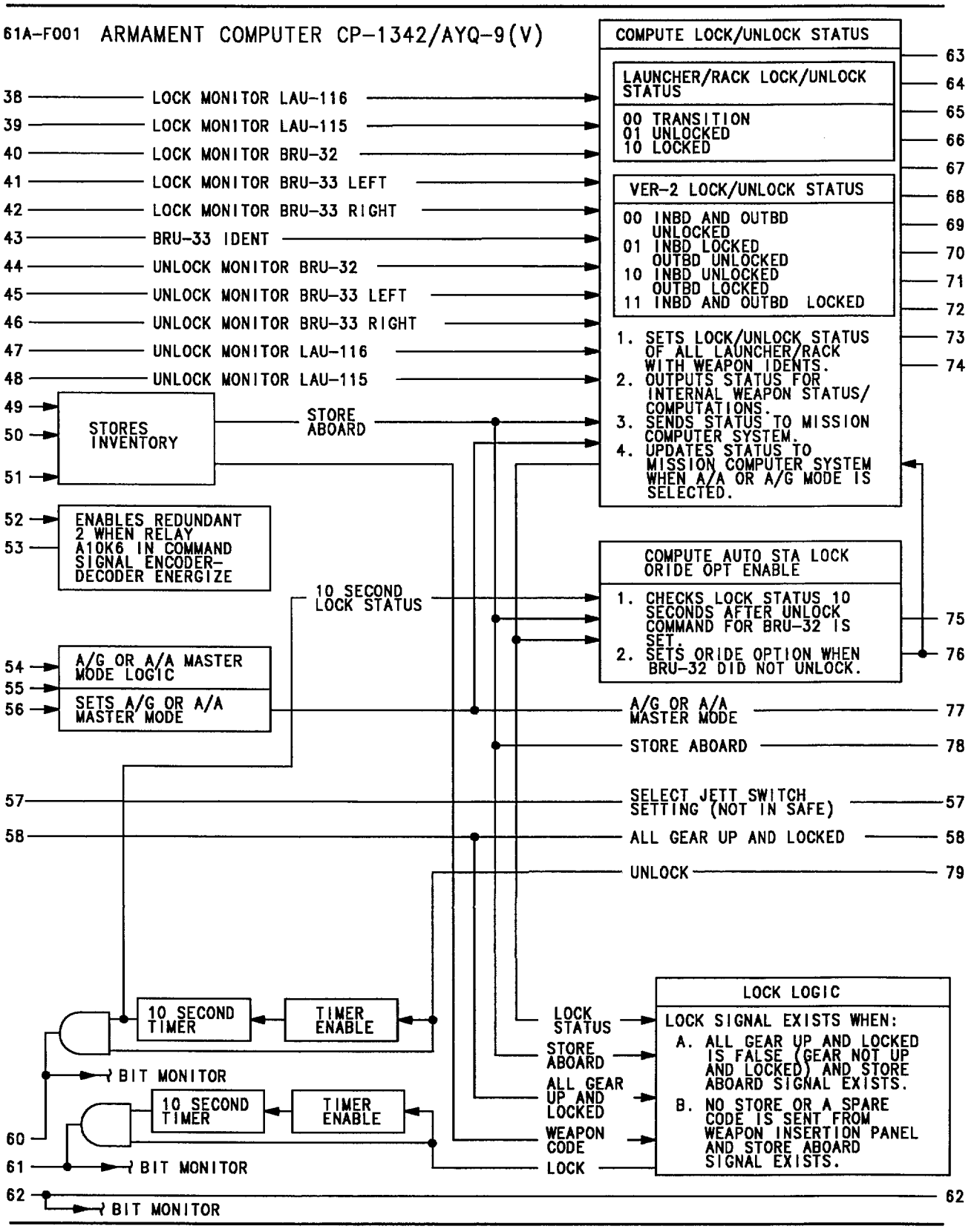
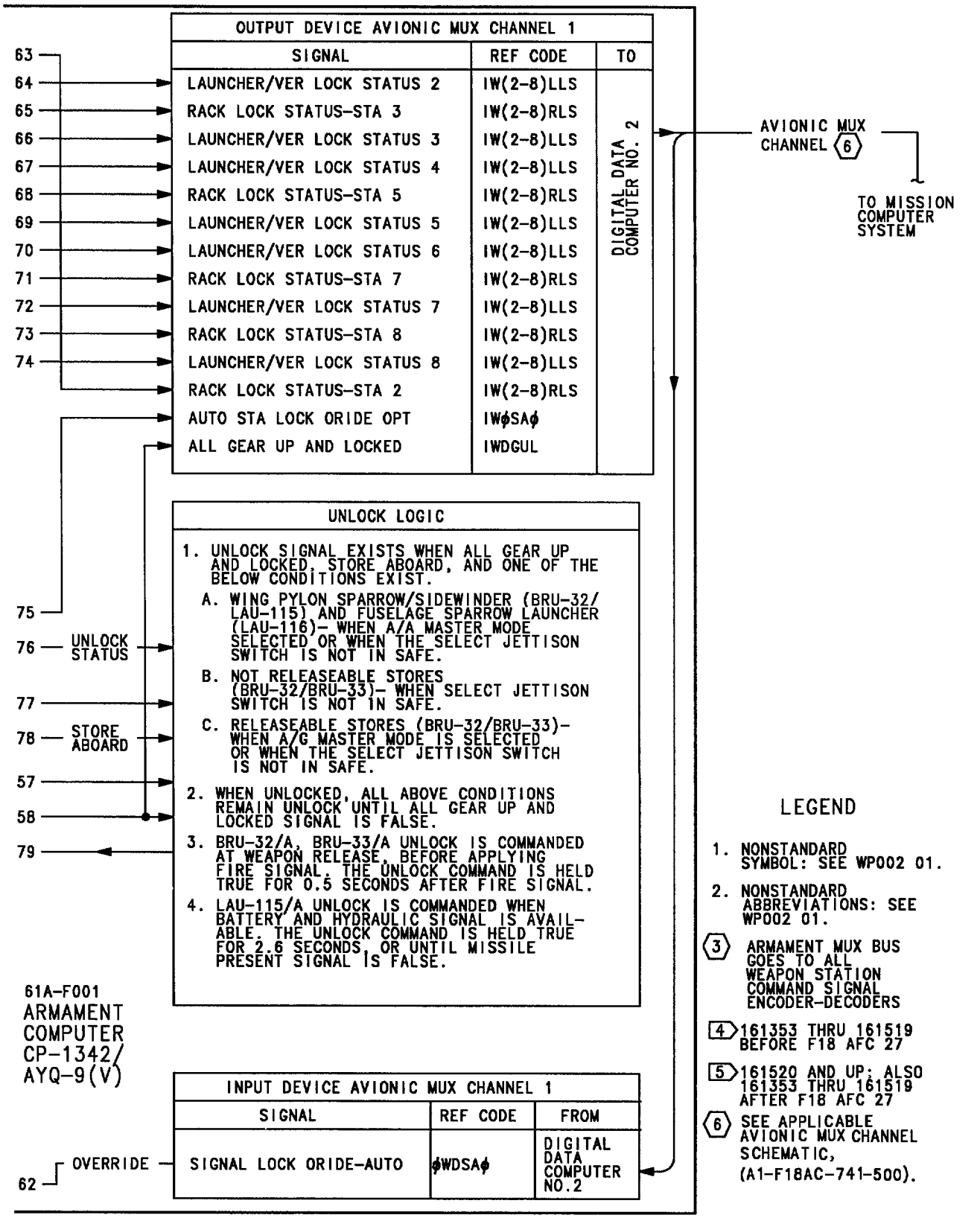
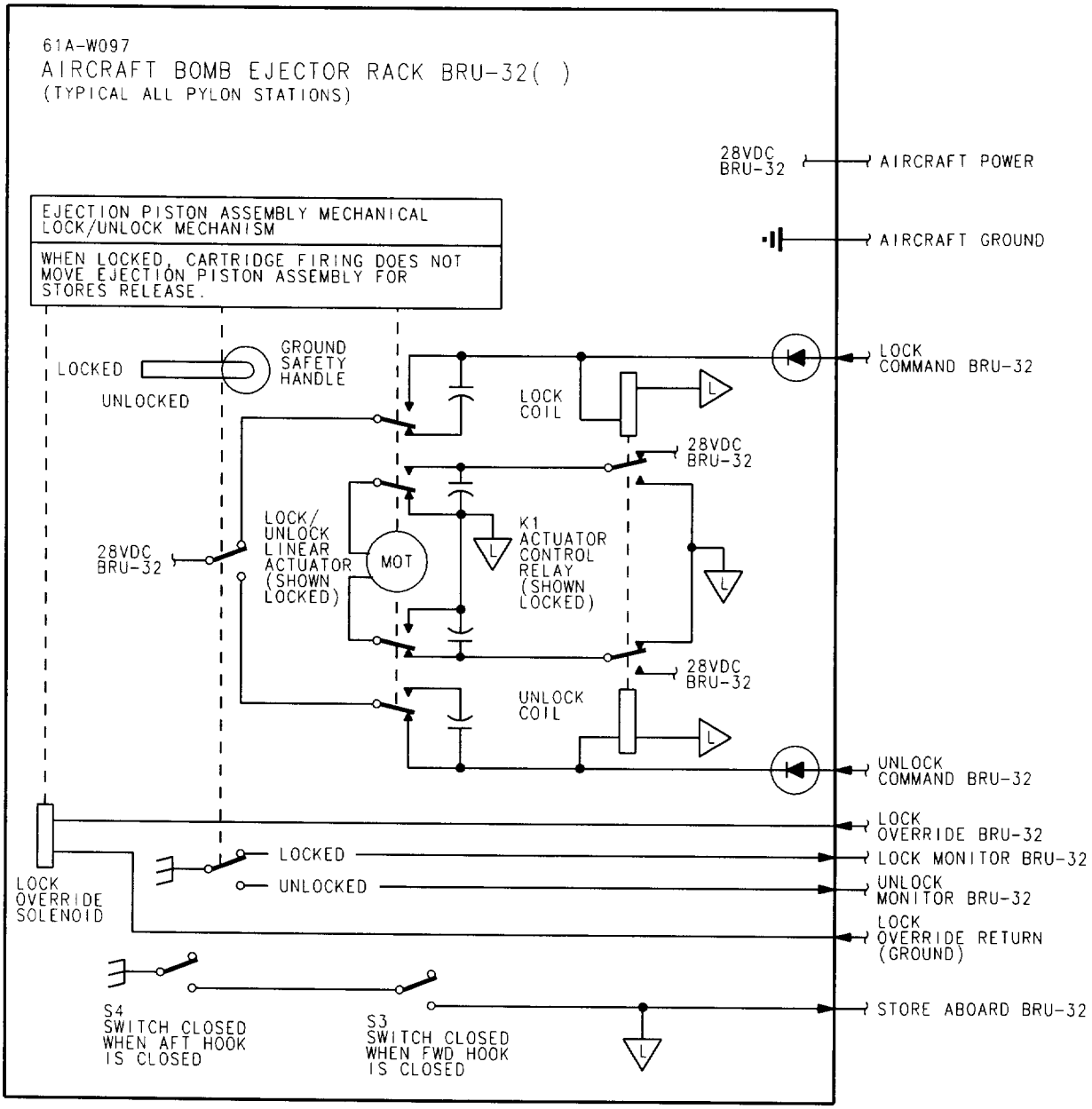


Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 7)



03200108

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 8)

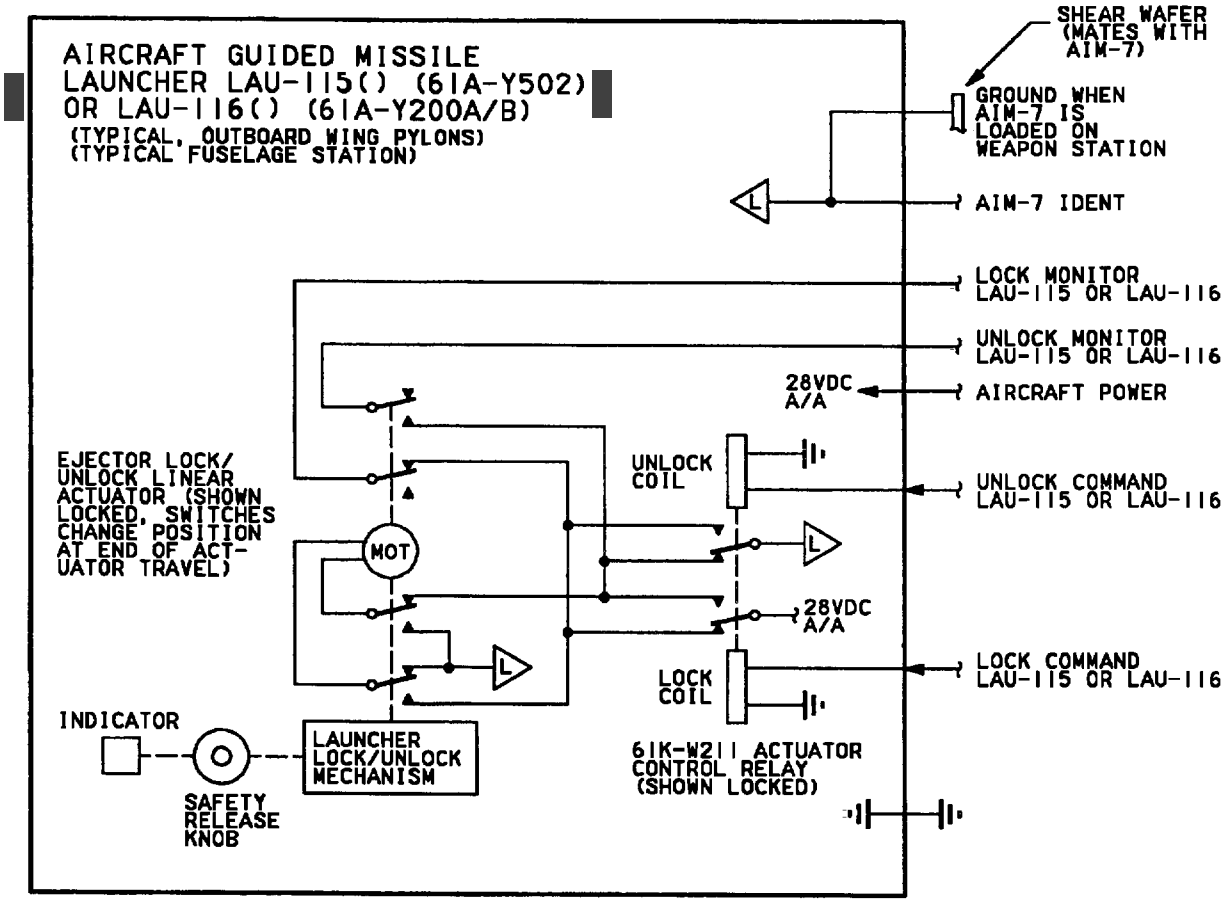


LEGEND

1. NONSTANDARD SYMBOLS: SEE WP002 01.
2. ABBREVIATIONS: SEE WP002 01.

032002

Figure 2. BRU-32 Lock/Unlock Simplified Schematic

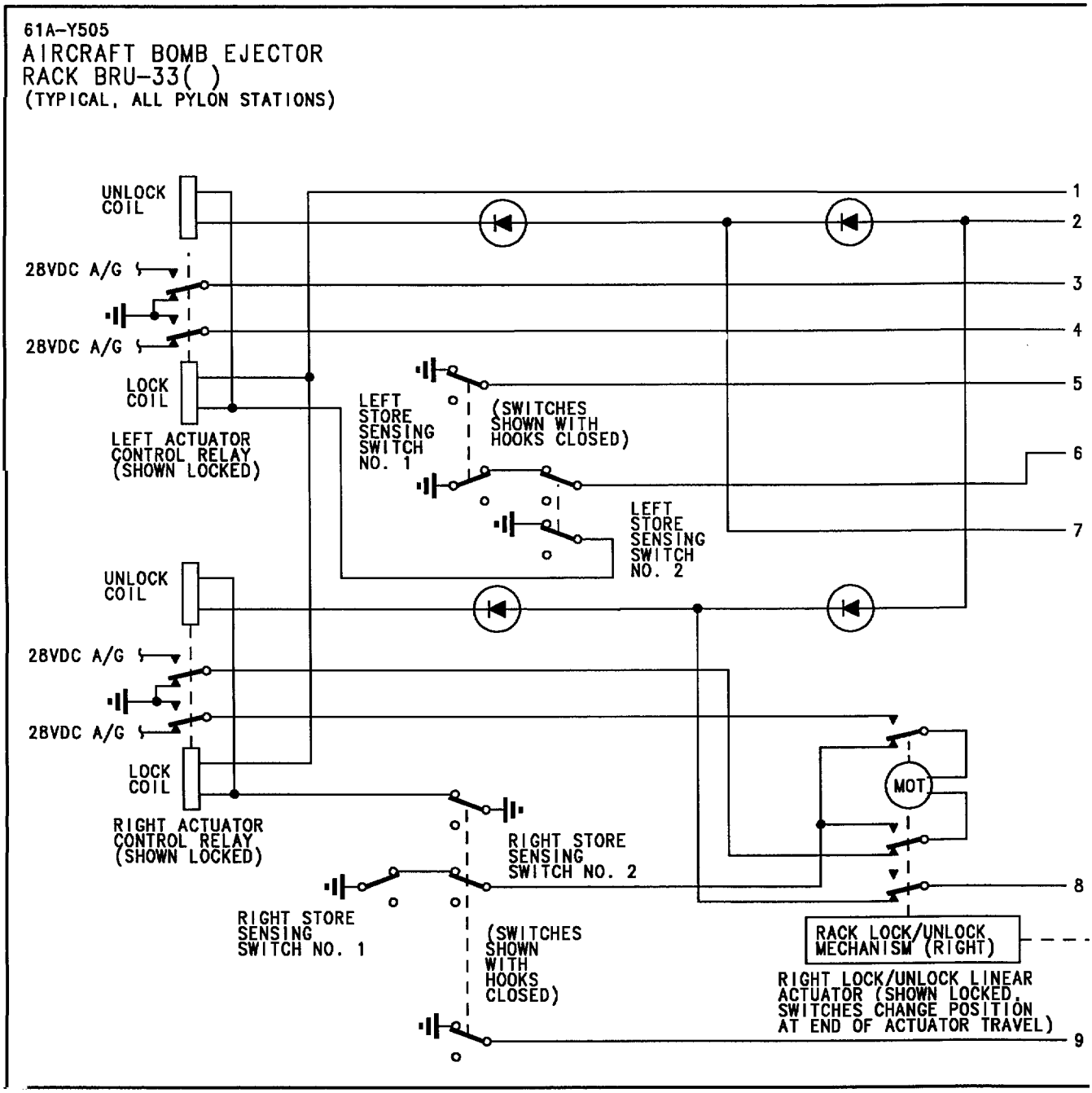


LEGEND

1. NONSTANDARD SYMBOLS: SEE WP002 01.
2. ABBREVIATIONS: SEE WP002 01.

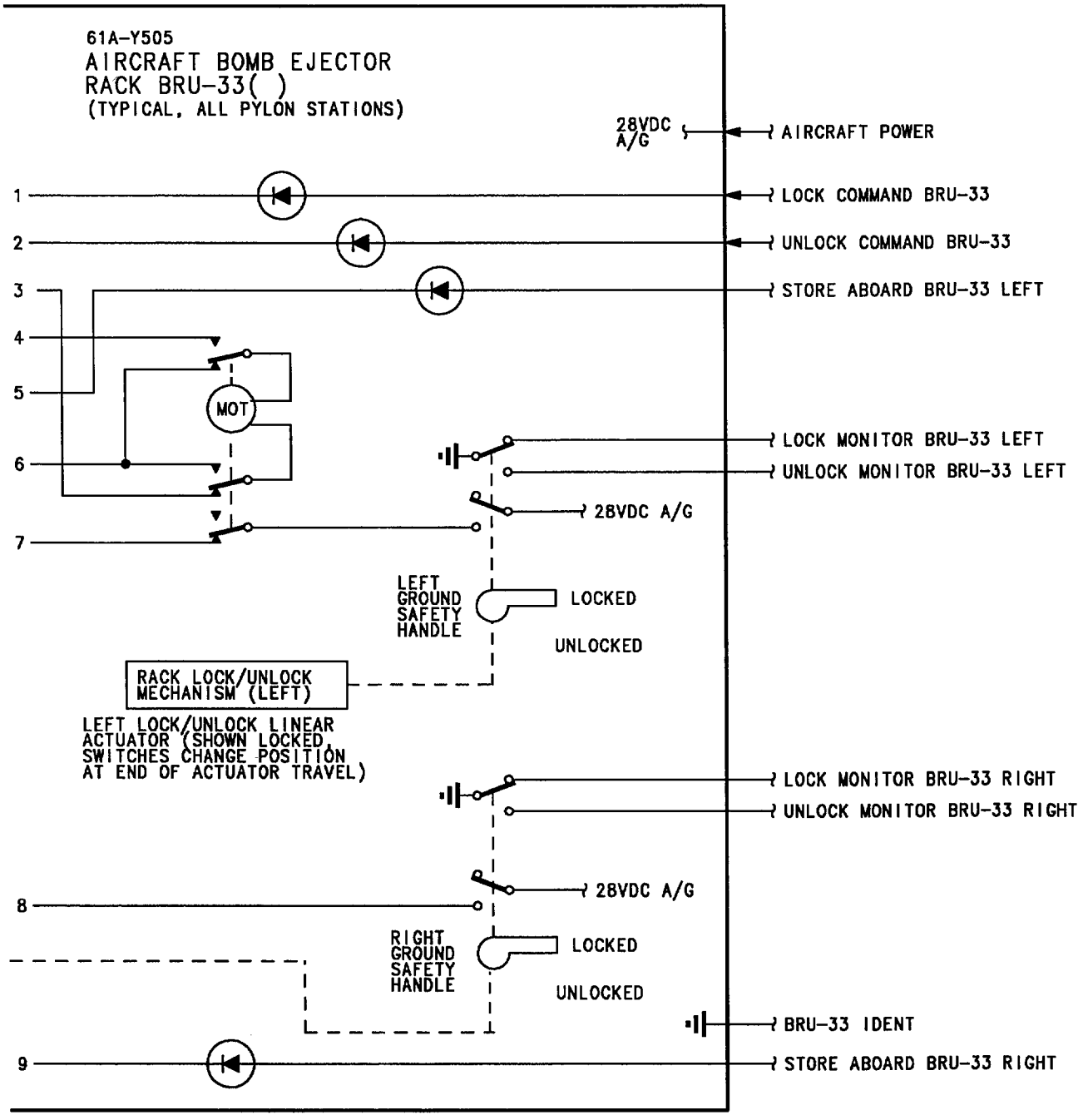
032003

Figure 3. LAU-115 and LAU-116 Lock/Unlock Simplified Schematic



03200401

Figure 4. BRU-33 Lock/Unlock Simplified Schematic - Part Numbers J014000-525, -529, and -535 (Sheet 1)



LEGEND

1. ABBREVIATIONS: SEE WP002 01.

03200402

Figure 4. BRU-33 Lock/Unlock Simplified Schematic - Part Numbers J014000-525, -529, and -535 (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - LAUNCHER/RACK LOCK/UNLOCK SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

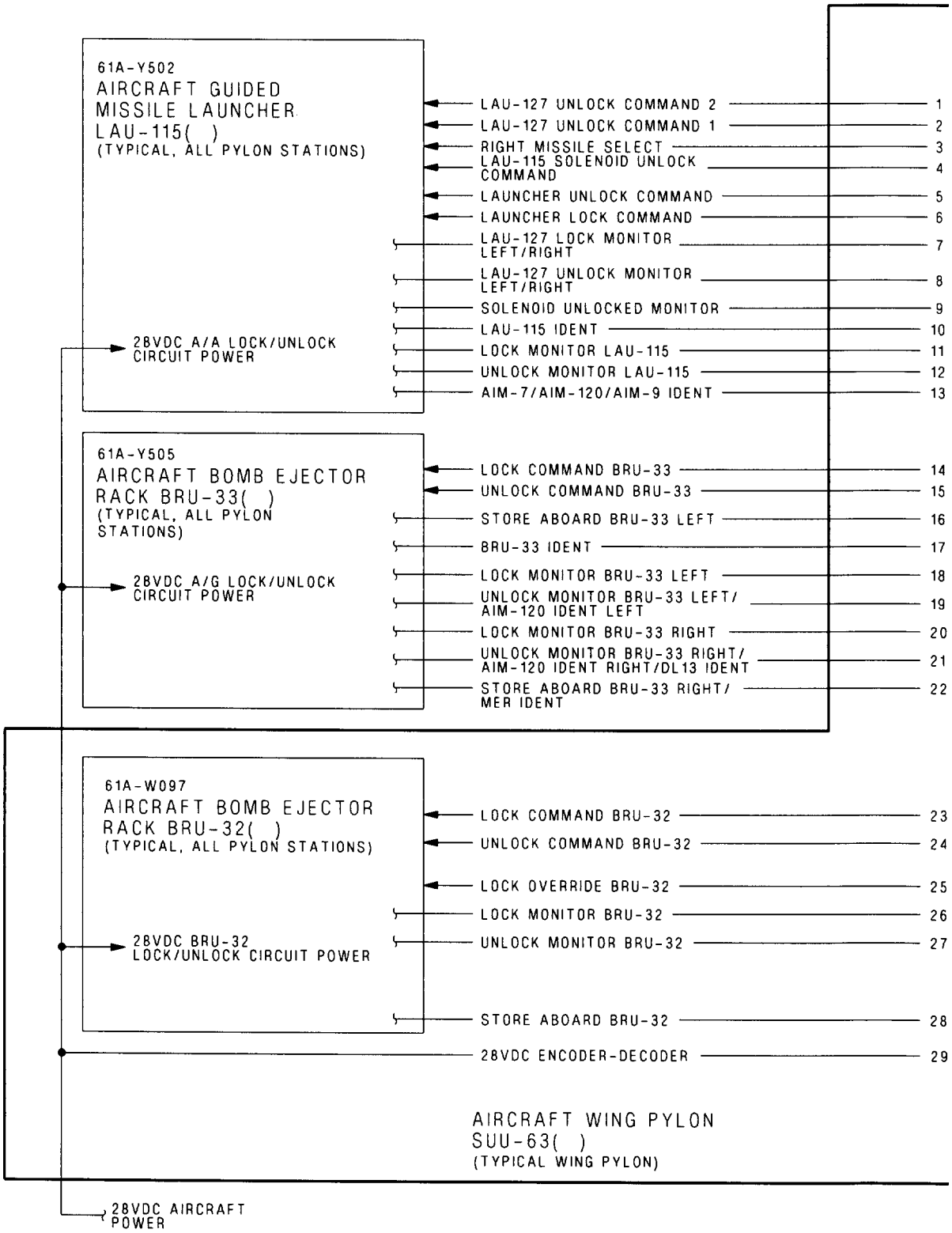
Subject	Page No.
BRU-32 Lock/Unlock Simplified Schematic, Figure 2	10
BRU-33 Lock/Unlock Simplified Schematic, Figure 4	12
Introduction	1
LAU-115 Lock/Unlock Simplified Schematic, Figure 5	14
LAU-116 Lock/Unlock Simplified Schematic, Figure 3	11
Launcher/Rack Lock/Unlock Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

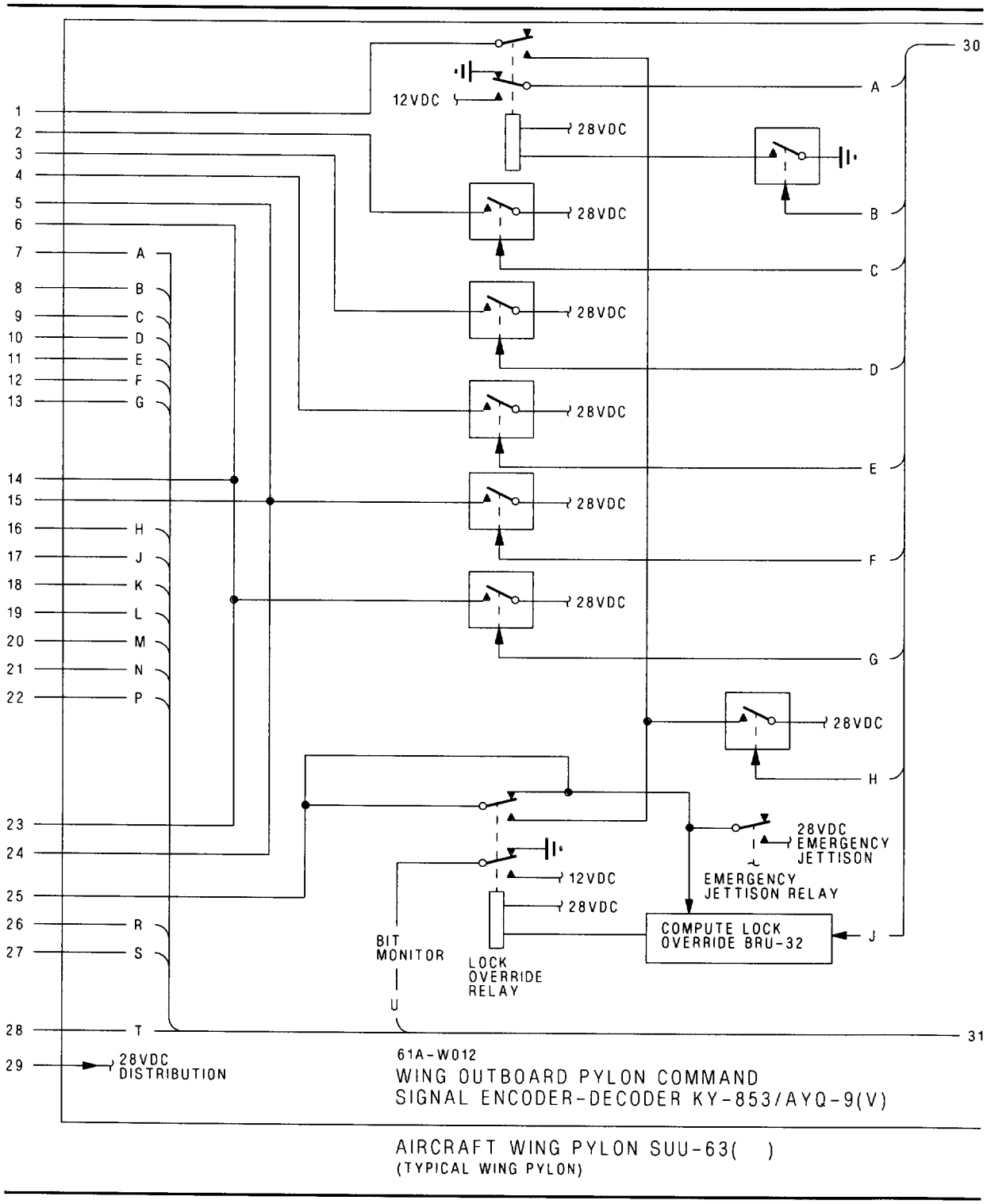
1. INTRODUCTION.

2. The schematics in this work package are provided to support the data in WP031 00.



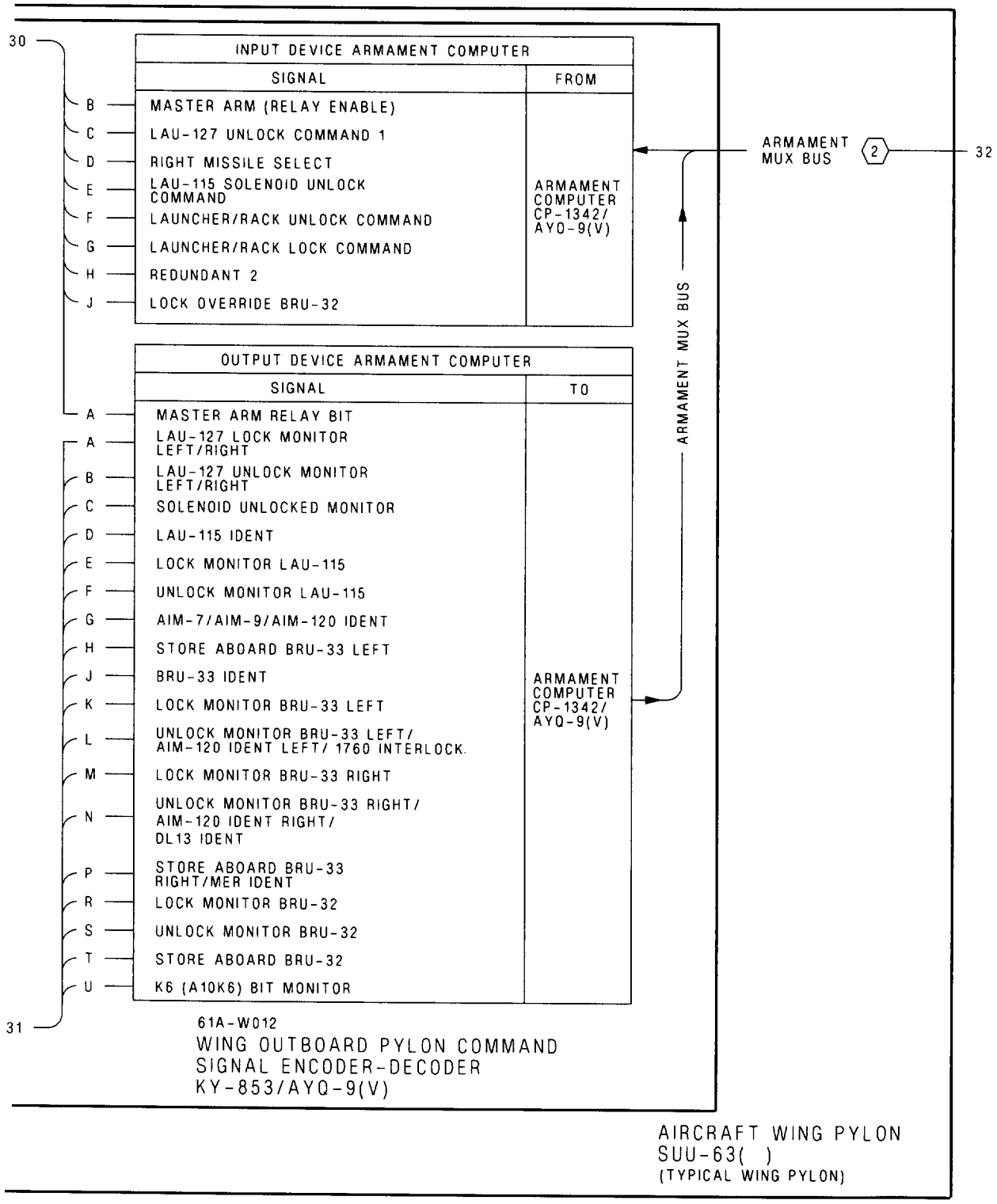
32010101

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 1)



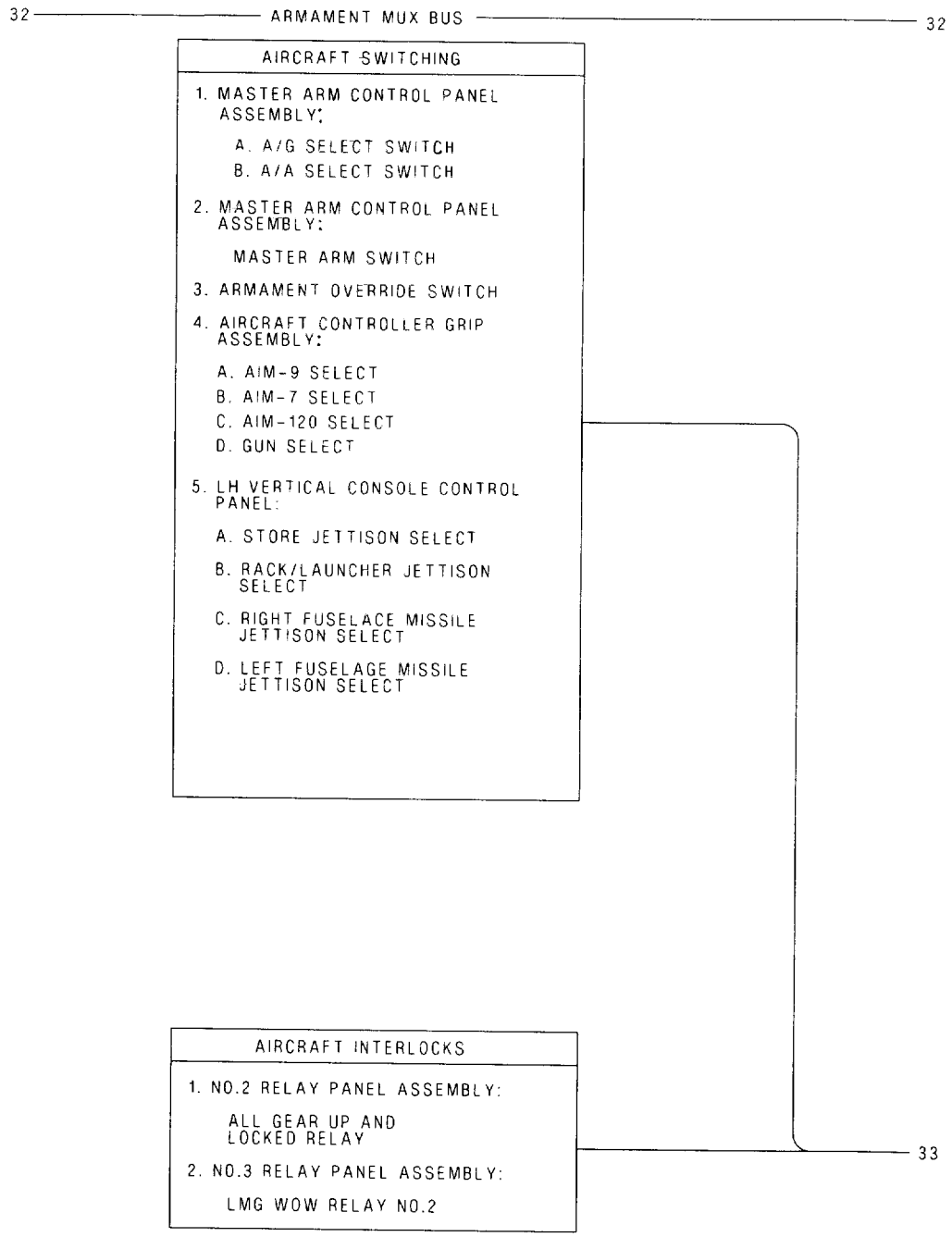
32010102

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematics (Sheet 2)



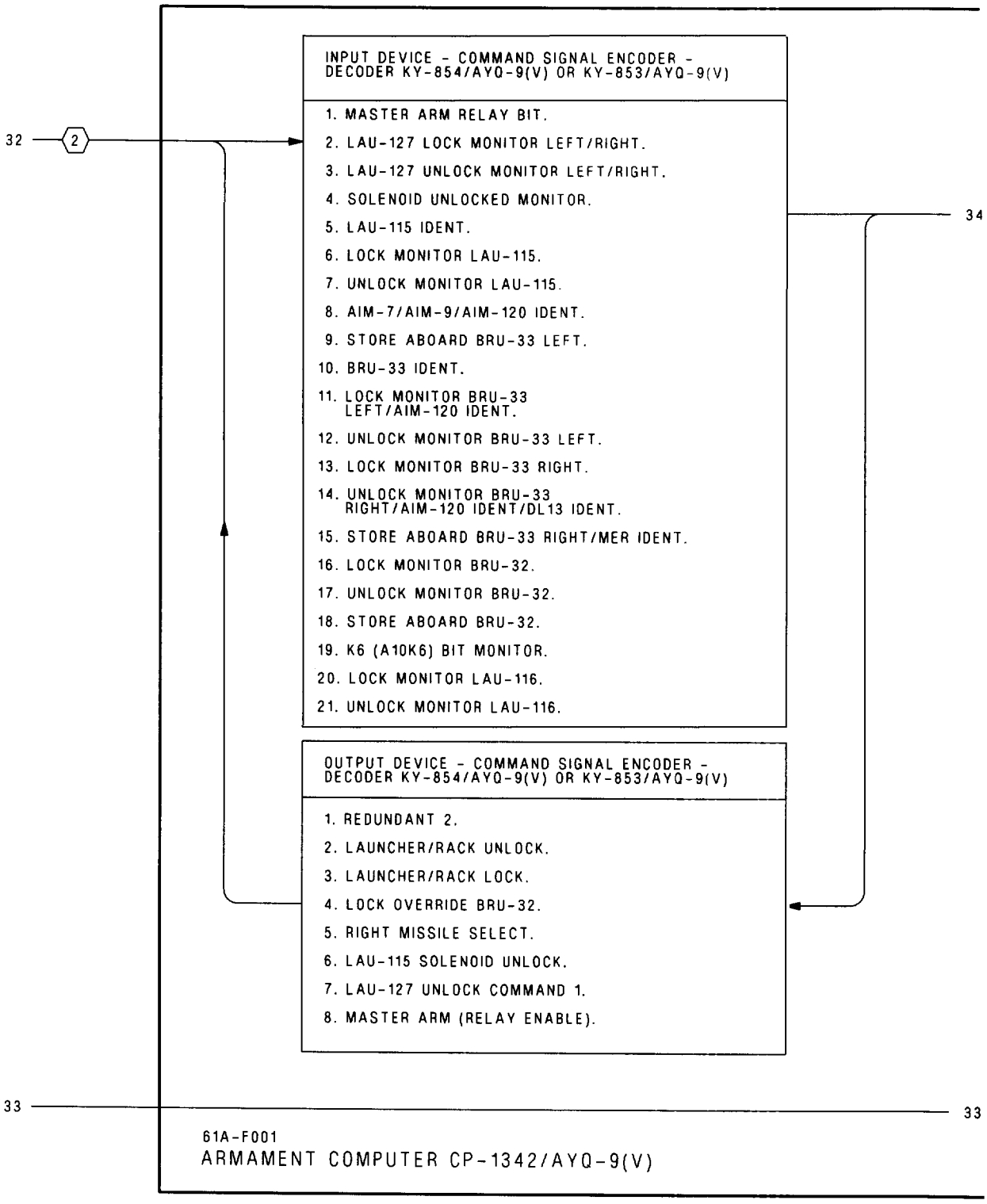
32010103

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 3)



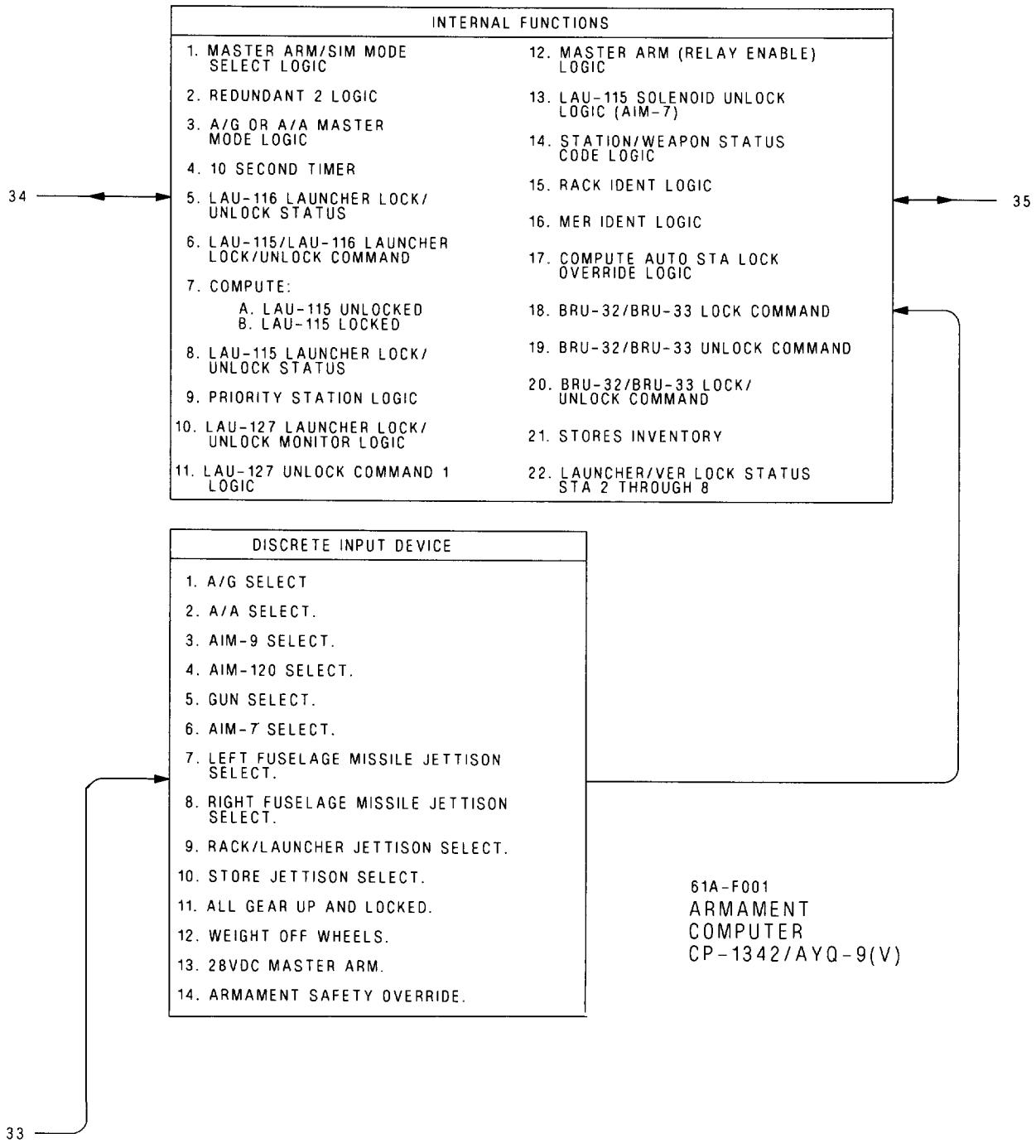
32010104

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 4)



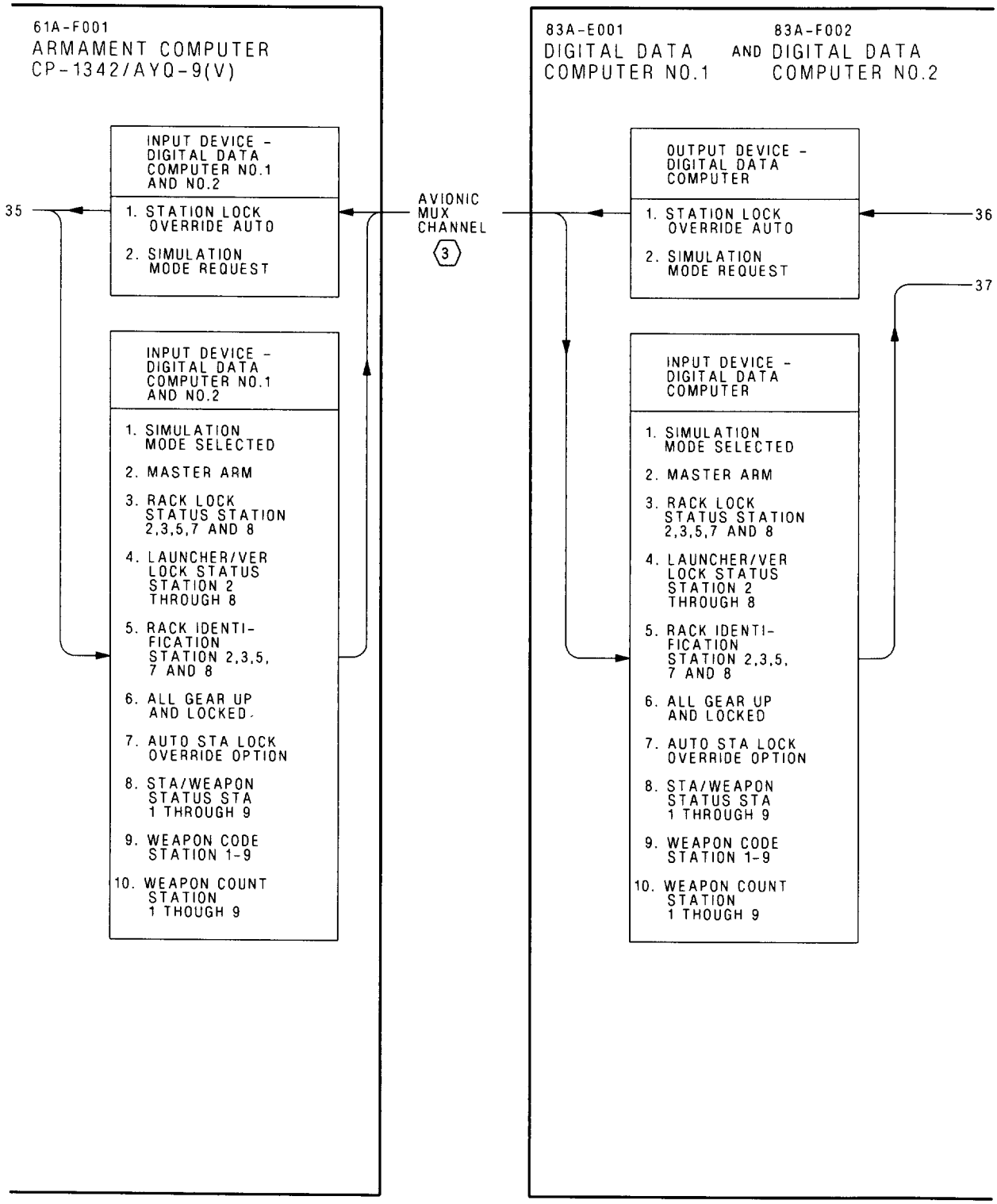
32010105

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 5)



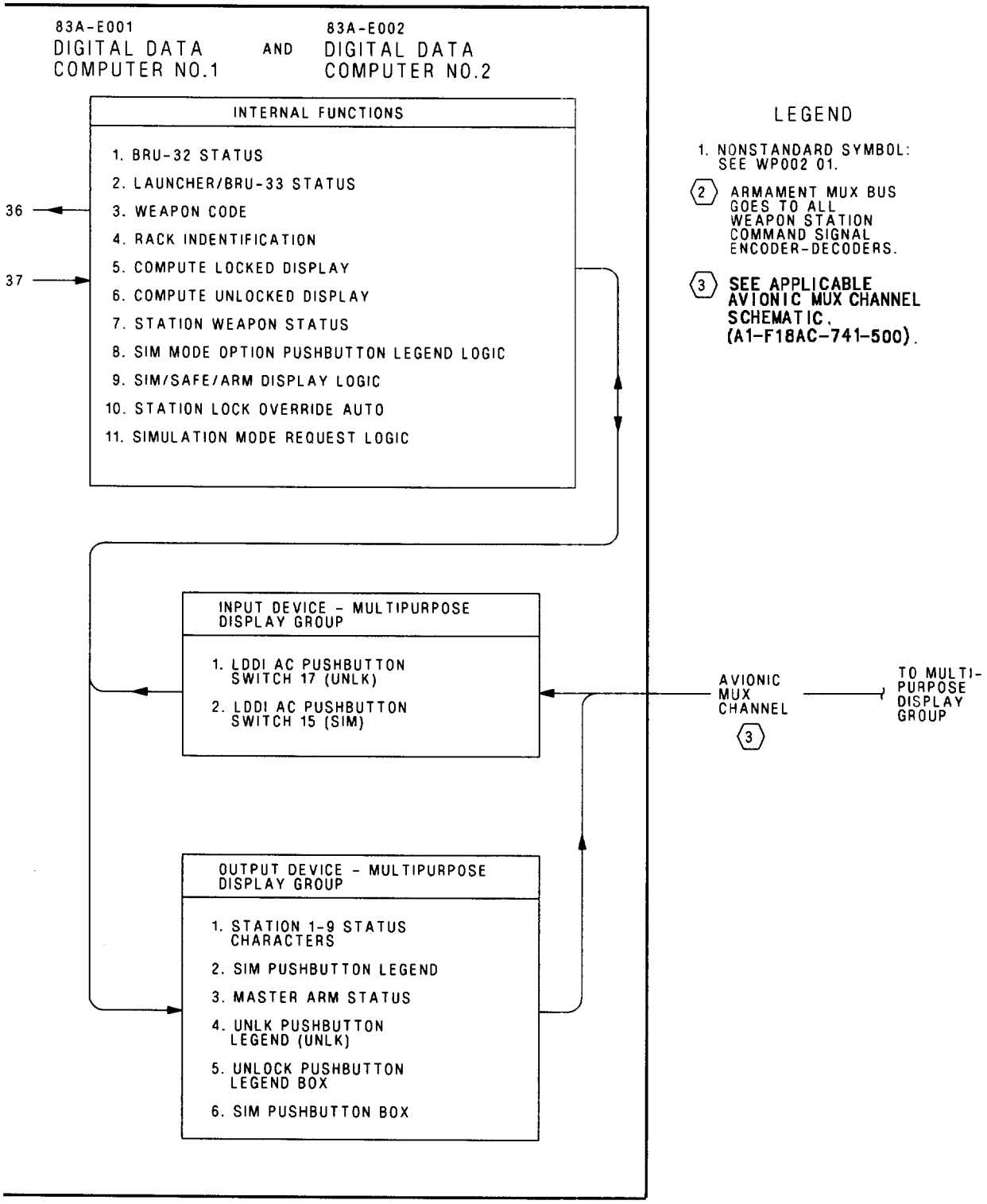
32010106

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 6)



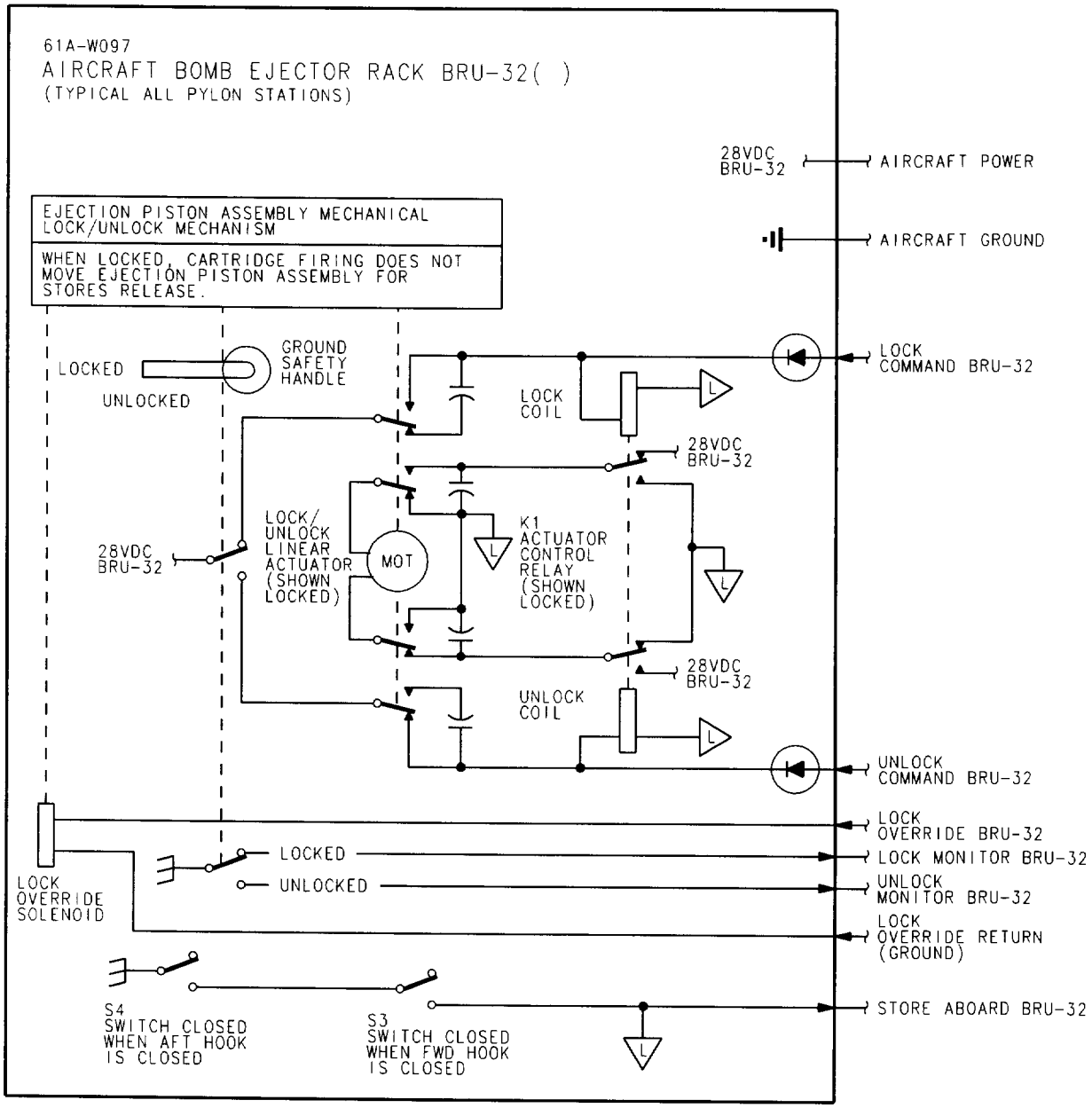
32010107

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 7)



32010108

Figure 1. Launcher/Rack Lock/Unlock Simplified Schematic (Sheet 8)

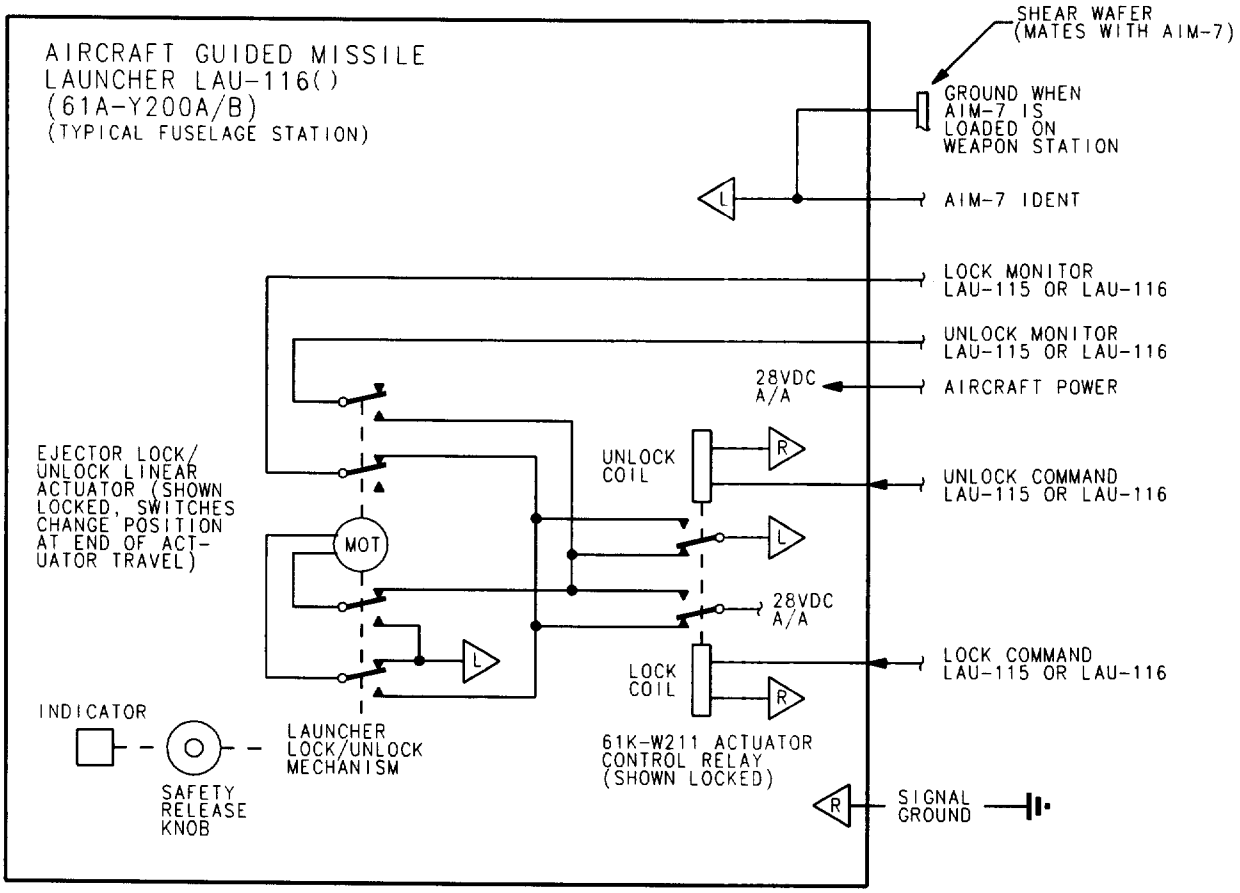


LEGEND

1. NONSTANDARD SYMBOLS: SEE WP002 01.

03201002

Figure 2. BRU-32 Lock/Unlock Simplified Schematic

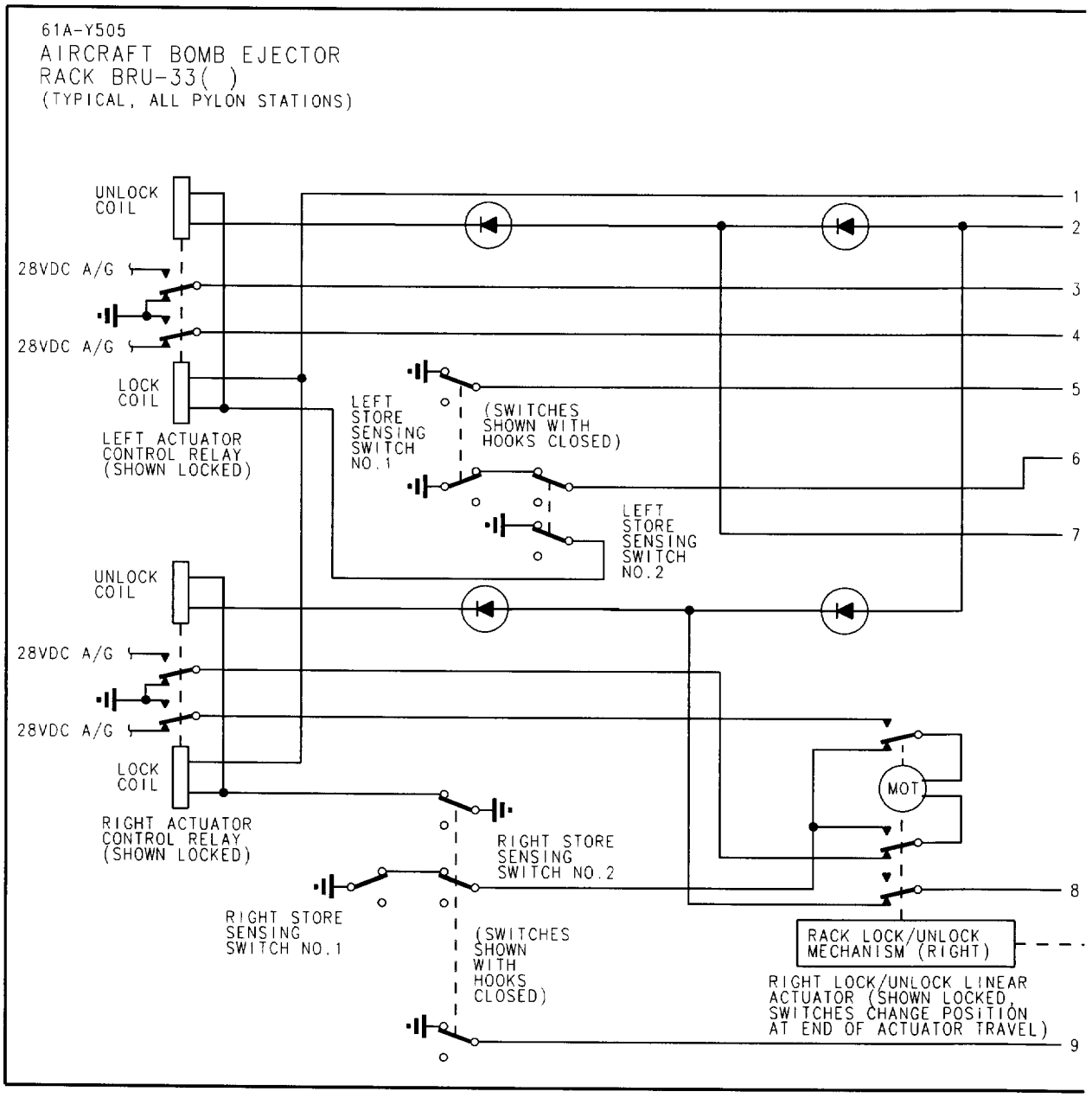


LEGEND

1. NONSTANDARD SYMBOLS, SEE WP002 01.

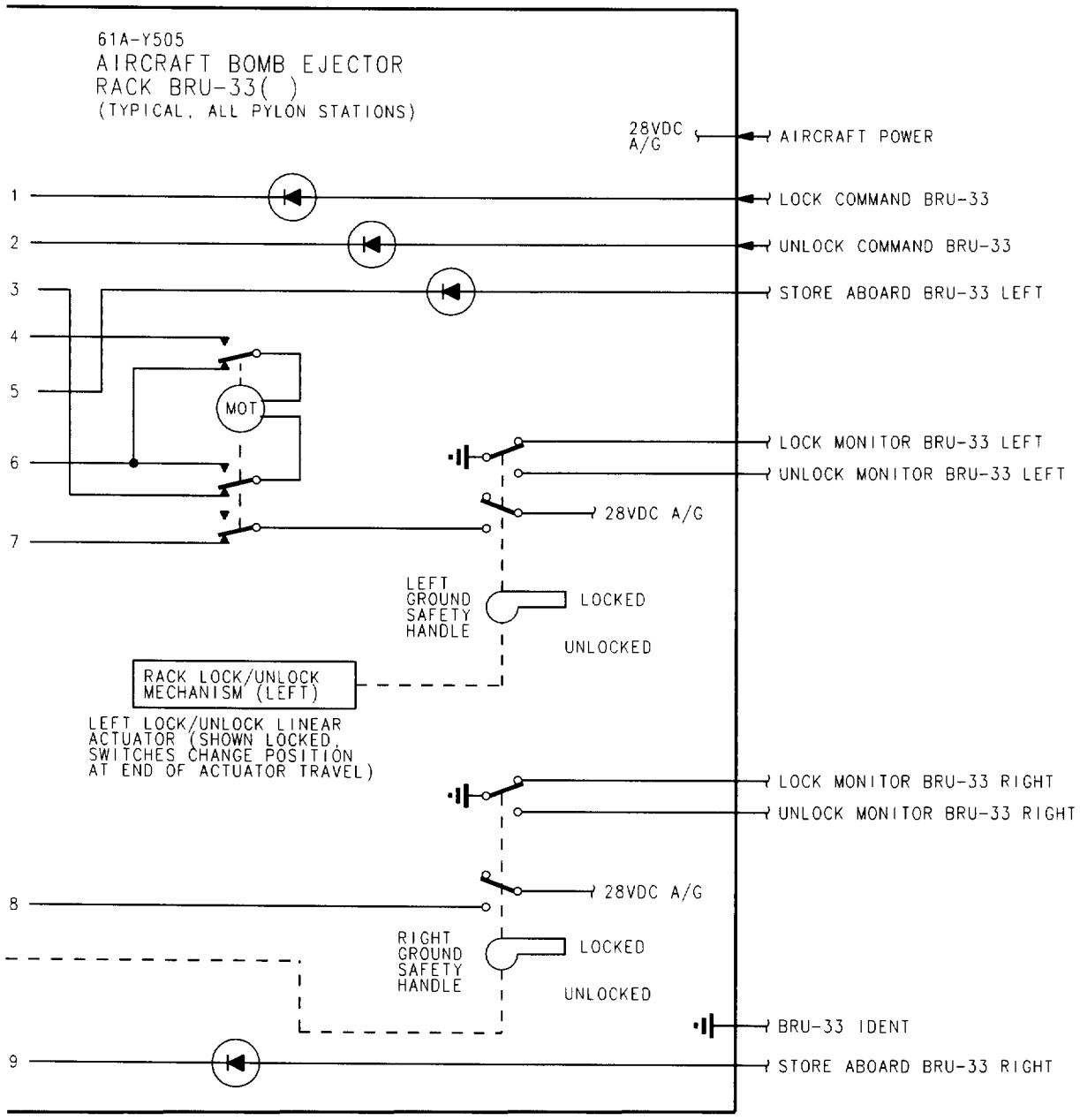
03201003

Figure 3. LAU-116 Lock/Unlock Simplified Schematic



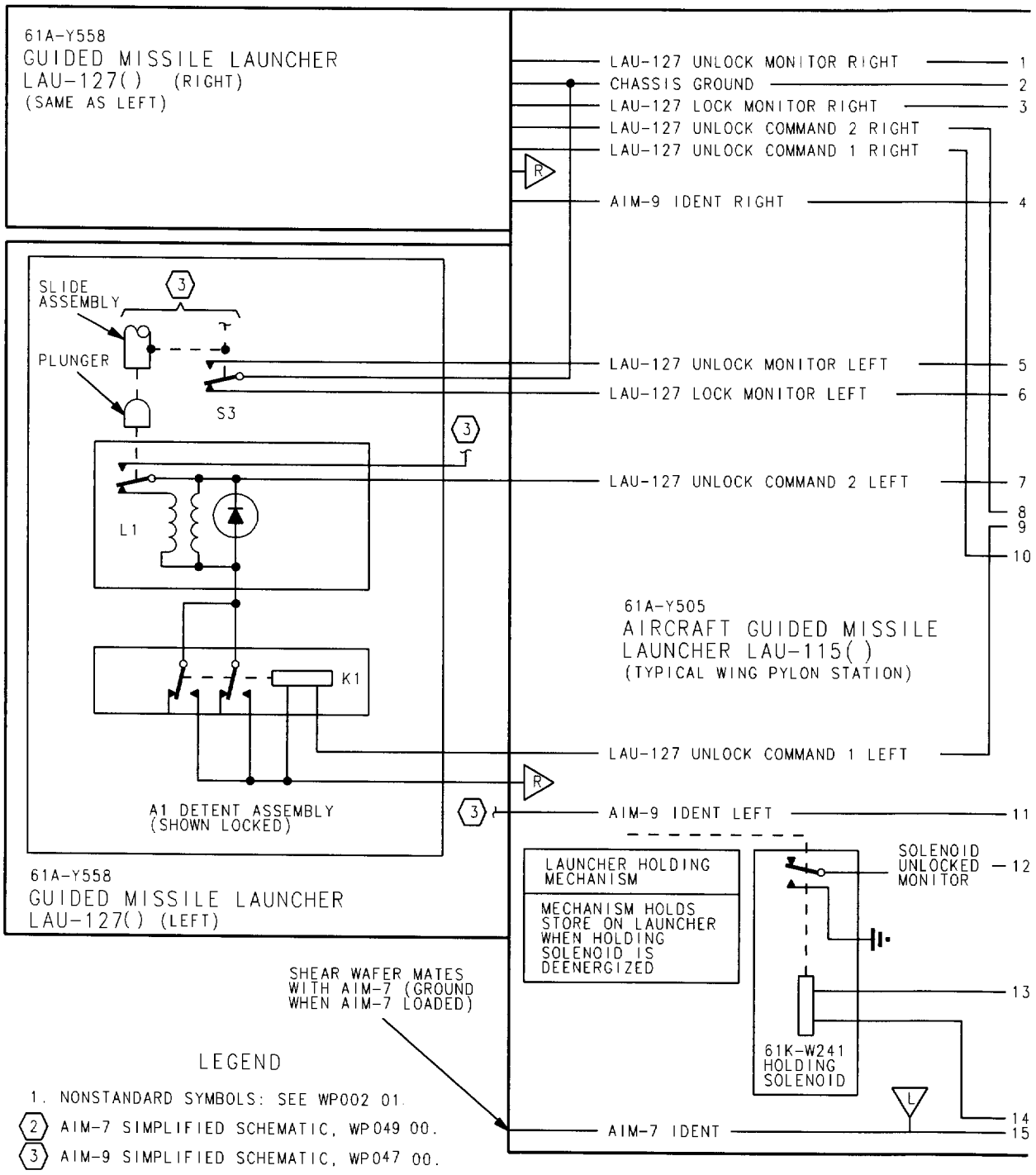
32010401

Figure 4. BRU-33 Lock/Unlock Simplified Schematic (Sheet 1)



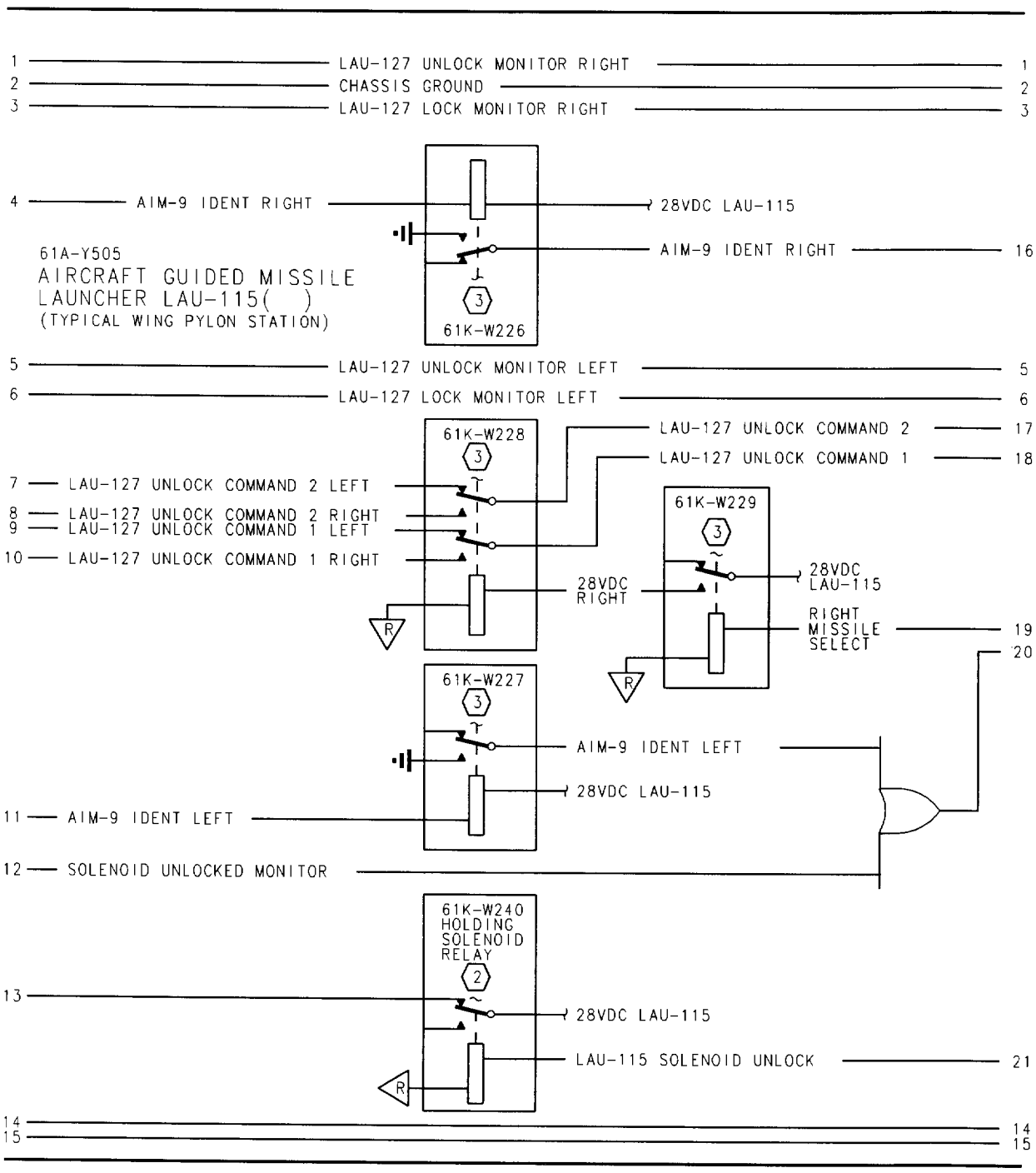
32010402

Figure 4. BRU-33 Lock/Unlock Simplified Schematic (Sheet 2)



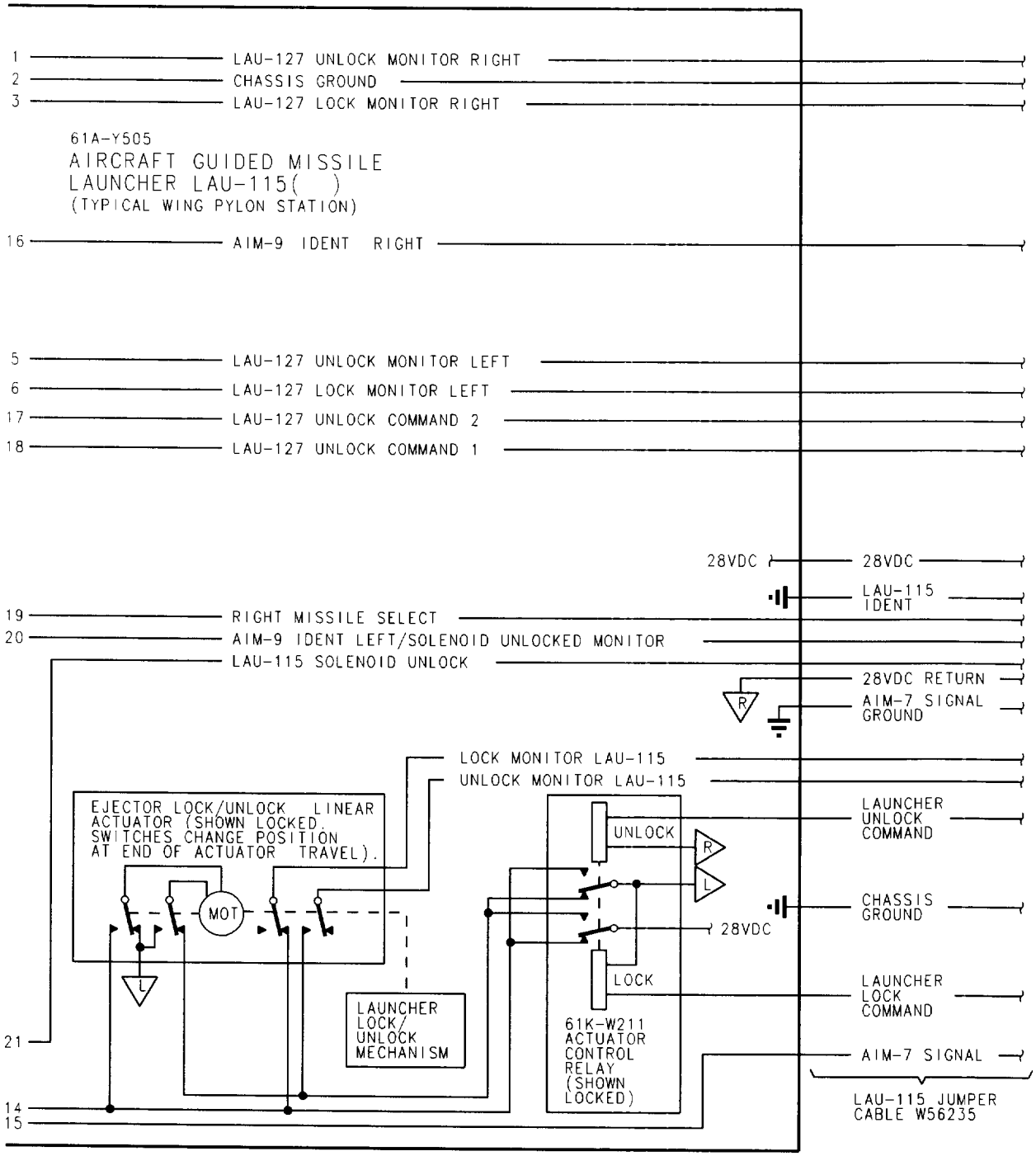
32010501

Figure 5. LAU-115 Lock/Unlock Simplified Schematic (Sheet 1)



32010502

Figure 5. LAU-115 Lock/Unlock Simplified Schematic (Sheet 2)



32010503

Figure 5. LAU-115 Lock/Unlock Simplified Schematic (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - LOCK/SHOOT LIGHT/SHOOT CUE

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Lock/Shoot Light Simplified Schematic WP034 00
Weapon Control System A1-F18AC-740-500
Lock/Shoot Light/Shoot Cue Schematic WP021 00

Alphabetical Index

Subject	Page No.
Introduction	1
Lock/Shoot Light Assembly	4
Lock/Shoot Light Displays, Figure 1	6
Lock/Shoot Light/Shoot Cue Operation	2
Mission Computer System Control	2
Simulation Mode	4

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) lock/shoot light/cue operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP034 00 for the simplified lock/shoot light operation schematics. The amplified schematics provided in WP034 00 are listed below:

a. AIM-9 Sidewinder Lock/Shoot Light/Shoot Cue Simplified Schematic, Figure 1.

b. Gun/Rocket Lock/Shoot Ligh/Shoot Cue Simplified Schematic, Figure 2.

c. AIM-7 Sparrow Lock/Shoot Light/Shoot Cue Simplified Schematic, Figure 3.

d. AIM-120 AMRAAM Lock/Shoot Light/Shoot Cue Simplified Schematic Figure 5 (AFTER AFC 253 OR 292).

e. Lock/Shoot Light/Shoot Cue Display Simplified Schematic, Figure 4.

4. Figures 1, 2, and 3, in WP034 00, show mission computer (MC) computations used for lock/shoot logic. Figure 4, in WP034 00, shows MC system interface with Control-Converter C-10382/A, aircraft switching, lock/shoot light assembly, and multipurpose display group. Lock/shoot light schematics (A1-F18AC-740-500, WP021 00) show detailed operation.

5. Figure 1 shows the LOCK/SHOOT and SHOOT cue displays on the lock/shoot light assembly, Digital Display Indicators (DDI) IP-1317/( ) and Head-Up Display Unit (HUD) AN/AVQ-28.

6. Refer to WP014 00 for component locations.

7. LOCK/SHOOT LIGHT/SHOOT CUE OPERATION.

8. The lock/shoot light/shoot cue function is provided during air-to-air (A/A) operation for the AIM-9 sidewinder, AIM-7 sparrow, AIM-120 AMRAAM (AFTER AFC 253 OR 292) and A/A gun mode. This function provides a visual indication for radar lockon (LOCK light) and when weapon release interlocks are satisfied (SHOOT light/SHOOT cue).

9. The shoot light function is provided during air to ground (A/G) rocket delivery, and with no weapon selected, shoot light is functional for A/G gun mode when gun is selected on left digital display indicator (LDDI). Lock light is not functional during A/G mode operation.

10. Lock/shoot light operation in this work package is provided as listed:

a. mission computer (MC) system control

b. lock/shoot light assembly

11. **MISSION COMPUTER SYSTEM CONTROL.** The MC system provides outputs to the Control-Converter C-10382/A to operate the lock/shoot lights on the lock/shoot light assembly and the multipurpose display group for shoot cue displays on the DDI and HUD.

12. On 161353 THRU 163175 BEFORE F/A-18 AFC 292, the MC system uses radar track status from Radar Set AN/APG-65 and stores inventory and weapon select data from the SMS system to compute lock/shoot indicator enable signals.

13. On 161353 THRU 163175 AFTER F/A-18 AFC 292, the MC system uses radar track status from Radar Set AN/APG-73 and stores inventory and weapon select data from the SMS system to computer lock/shoot indicator enable signals.

14. The lock light enable is sent to the control-converter to turn the LOCK light on when the aircraft master mode is A/A or navigation (NAV) and the radar is in track but not track memory.

15. The shoot light/shoot cue enable is computed by the MC for the weapons listed:

a. AIM-120 AMRAAM

b. AIM-7 sparrow

c. AIM-9 sidewinder

d. gun (A/A mode)

e. rockets (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292)

f. gun (A/G mode) (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292)

16. **AIM-120 AMRAAM.** The AIM-120 shoot light/cue is enabled with the conditions listed below exist:

a. AIM-120 ident exists (onboard), AIM-120 selected

b. Radar in high PRF (single target track) (STT)

c. Target not in main beam clutter or TWS target above aircraft

d. Steering dot inside of allowable steering error (ASE) circle

e. MASTER switch set to ARM

f. Target within the weapon envelope (target range less than Rmax if displayed and more than Rmin)

g. Radar in full track or target is track while scan (TWS) target

17. The AIM-120 shoot light/cues flash when the target is in the maneuvering target weapon envelope. (Target range less than Rne and more than Rmin).

18. The AIM-7 light/cues flash when the target is in the maneuvering target weapon envelope. (Target range less than Rmax 2 and more than Rmin).

19. **WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AIM-7 Sparrow.** The AIM-7 shoot light/cue is enabled with the conditions listed below exist:

a. AIM-7 ident exists (onboard), AIM-7 selected and tuned.

b. Radar in high PRF (single target track) (STT).

c. Target not in main beam clutter or TWS target above aircraft.

d. Steering dot inside of allowable steering error (ASE) circle.

e. MASTER switch set to ARM.

f. Target within the weapon envelope (target range less than Rmax or less than Raero if displayed and more than Rmin).

g. Radar in full track or target is track while scan (TWS) target.

20. The AIM-7 light/cues flash when the target is in the maneuvering target weapon envelope. (Target range less than Rne and more than Rmin).

21. **WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AIM-9 Sidewinder.** The AIM-9 shoot light/cue is enabled and flashes when the conditions listed below exist:

a. AIM-9 ident exists (AIM-9 aboard), and AIM-9 is selected.

b. Radar and AIM-9 are tracking the same target.

c. AIM-9 audio threshold exceeded (AIM-9 tone has satisfactory signal-to-noise ratio to pass angle coincidence).

d. MASTER switch set to ARM.

e. Steering dot is inside ASE circle.

f. Target range less than Rmax or less than Raero if displayed and more than Rmin.

22. The AIM-9 light/cues flash when the target is in the maneuvering target weapon envelope. (Target range less than Rne and more than Rmin).

23. **Gun (A/A Mode) - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR 292.** The shoot light/cue is enabled during gun A/A mode operation when the conditions listed below exist:

a. Gun selected with rounds remaining.

b. Radar system is angle tracking and not in track memory.

c. MASTER switch set to ARM.

d. Range tab less than Rmax and more than Rmin (HUD).

e. Steering dot inside target designator (HUD).

f. Miss distance less than shoot cue tolerance (HUD).

24. The A/A gun shoot light/cue is displayed steady.

25. **Gun (A/A Mode) - AFTER AFC 253 OR 292.** The shoot light/cue is enabled during gun A/A mode operation when the conditions listed below exist:

a. Gun selected with rounds remaining.

b. Radar system is single target tracking.

c. MASTER switch set to ARM.

d. Target is inside the Gun Rmax for selected round type.

e. Target control is within 20 feet of a vertical line connecting the 1G and 9G pippers of the Forsight cue.

f. The SHOOT logic is satisfied and the BATR cue (Bullet-At-Target-Range) is provided

g. Miss distance less than shoot cue tolerance (HUD)

26. The A/A gun shoot light/cue is displayed steady.

27. **Rockets - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR 292.** The rocket shoot light/cue is enabled when the conditions listed below exist:

a. Rockets on board and selected.

b. Air to ground (A/G) master mode selected.

c. Gun angle track/track history flag set.

d. MASTER switch set to ARM.

e. Target range less than rocket maximum range (HUD).

f. Miss distance less than shoot cue tolerance (HUD).

28. The rocket shoot light/cue is displayed steady.

29. **Gun (A/G Mode) - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.** The shoot light/cue is enabled during gun A/G mode operation when the conditions listed below exist:

a. Gun rounds remaining.

b. Radar system is angle tracking and not in track memory.

c. MASTER switch set to ARM.

d. Target range less than displayed gun range.

e. Miss distance less than shoot cue tolerance.

f. A/G gun enabled. A/G gun enable is set when no weapon is selected, weapon release is not in progress, A/G master mode is selected, and left digital display indicator (LDDI) AC pushbutton switch 11 (GUN) is pressed to set A/G gun request.

30. The A/G gun shoot light/cue is displayed steady.

31. **SIMULATION MODE.** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. Lock/shoot light/shoot cue logic is provided in simulation mode. For detailed description of SIM mode operation, refer to WP026 01 in this manual.

32. **LOCK/SHOOT LIGHT ASSEMBLY.** The shoot/lock light assembly is located on the canopy arch. The assembly has two incandescent lights (SHOOT and LOCK) and a strobe light. The control-converter provides the control to turn the lights on/off.

33. Operation of the lock/shoot assembly is provided as listed:

a. power

b. lock light

c. shoot light

d. strobe light

e. control-converter switching

34. **Power.** The strobe light uses strobe light power supply to provide plus and minus 160vdc. The incandescent lights use 8-14vdc (dim) or 28vdc (bright) from the lighting system.

35. Power for the lock/shoot light is provided by INT LTS circuit breaker. Circuit breaker power (28vdc) is applied to both lights through the deenergized contacts of dimming relay no. 1 for bright operation.

36. When energized, dimming relay no. 1 applies 8-14vdc to the lights through the energized set of relay contacts. The relay is energized by a dim enable (ground) when the INTR LT control box panel assembly switches are set as listed below:

a. WARN/CAUTION dimmer control-RESET

b. FLOOD light switch - CHART

c. INST PNL dimmer control - on (not OFF)

d. FLOOD light dimmer control - on (not BRT)

37. The strobe light power supply uses 115vac 400 Hz phase A from the STROBE LT circuit breaker. The power supply provides +160vdc and -16vdc to the strobe light.

38. **Lock Light.** The LOCK light is a green incandescent light. The light is turned on by a lock ground (enable) from the control-converter.

39. **Shoot Light.** The SHOOT light is a white incandescent light. The light is turned on by a shoot ground (enable) from the control-converter.

40. **Strobe Light.** The shoot strobe light is a high intensity light that flashes during day operation to attract attention during bright sunlight. The light is activated under the same conditions that provides a flashing SHOOT light.

41. The strobe light power supply provides the power and strobe enable for the shoot strobe light. The light flashes once for every flash pulse enable to the power supply.

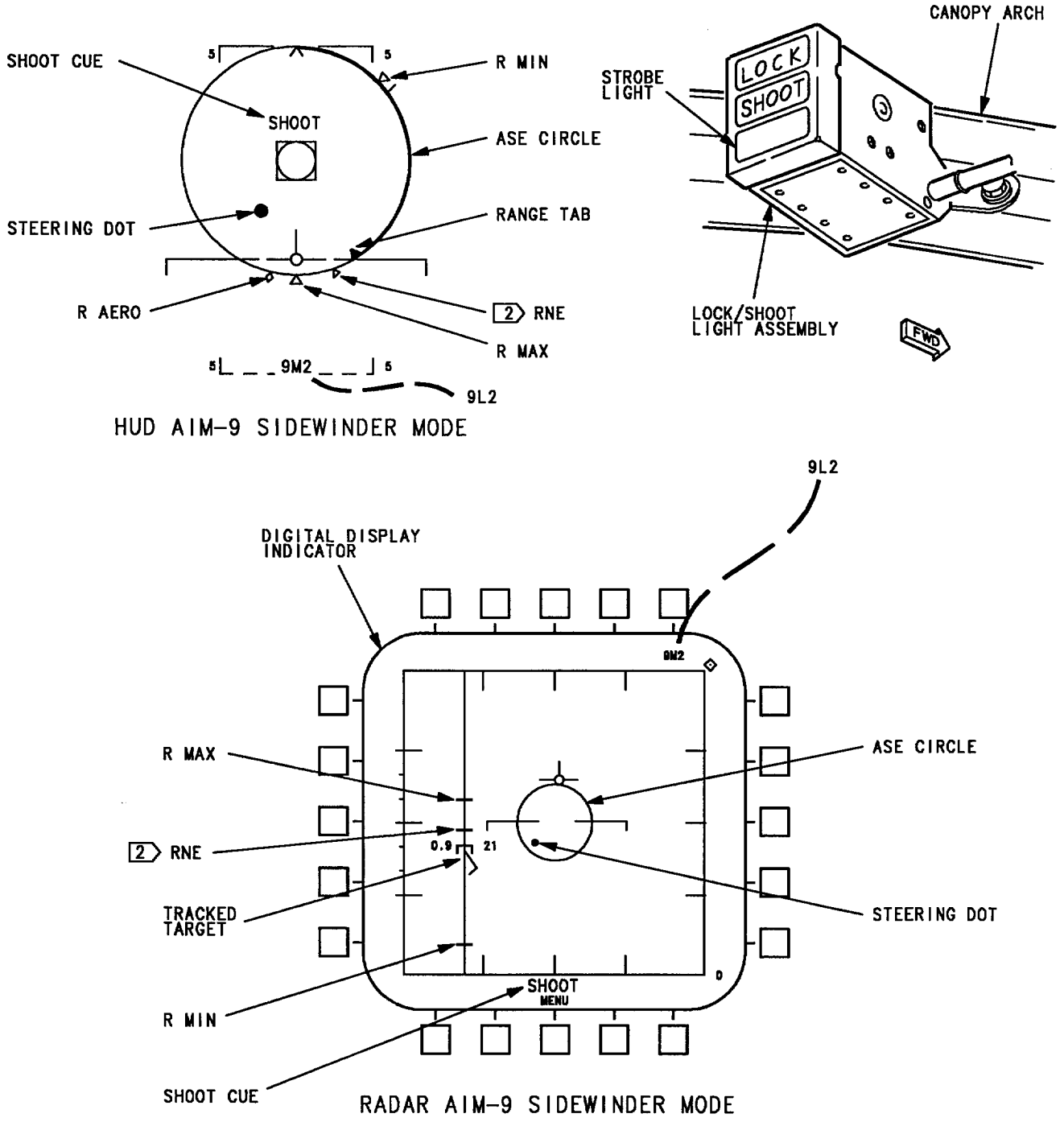
42. The flash pulse enable from the control-converter is enabled when dimming relay no. 2 is deenergized.

43. **Control-Converter Switching.** The control converter interfaces the MC system on the avionic mux bus. The MC system provides the outputs to the control-converter for the lock or shoot enable commands.

44. The control-converter receives the MC system commands and sets the ground enable outputs to the lock/shoot light assembly.

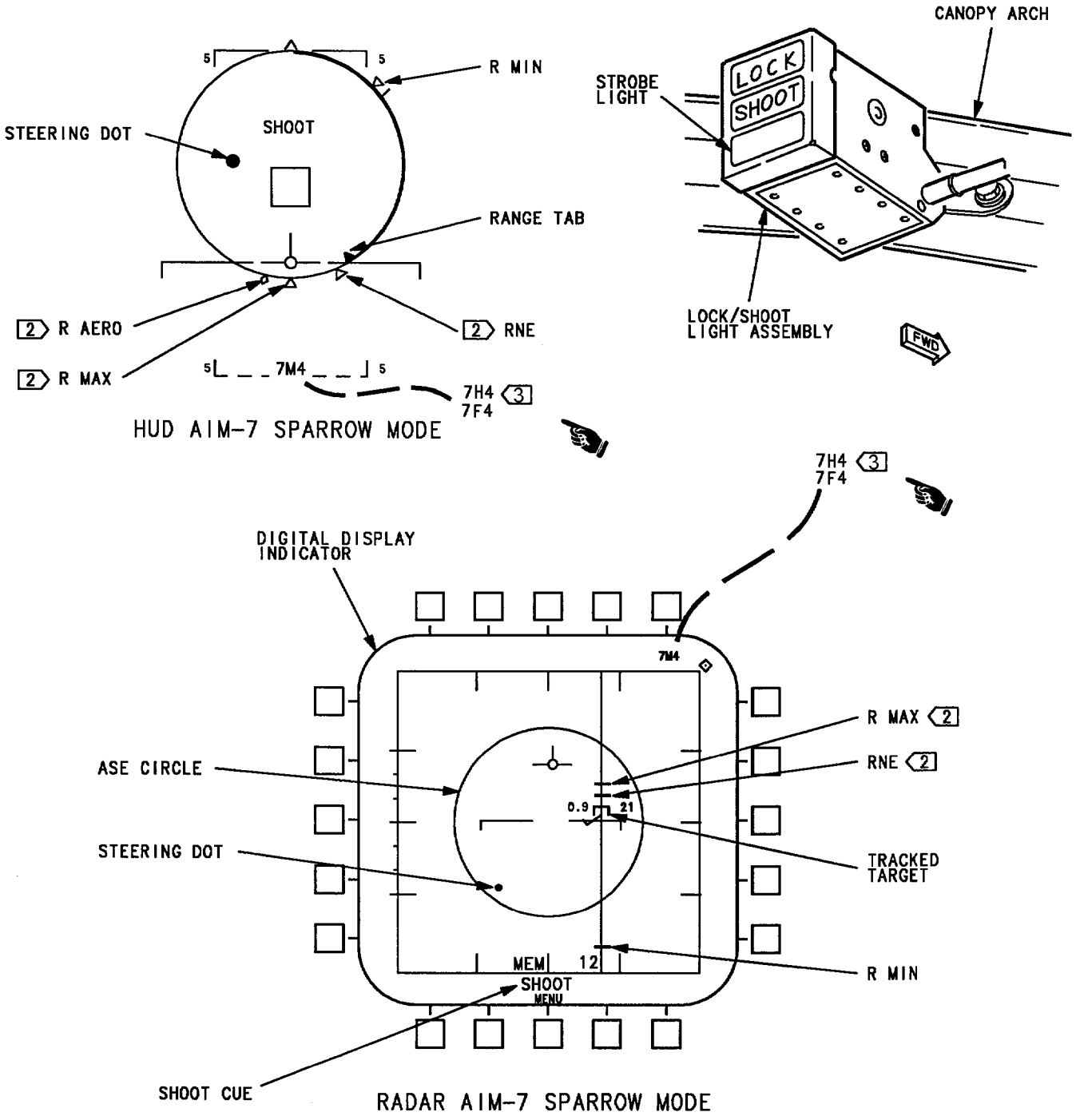
45. The lock ground is sent to the lock light. With 8-14/28vdc power from the lighting system applied to the light, the ground enable turns the light on.

46. The shoot ground is sent to the shoot light and the shoot strobe light power supply, when the INST PNL dimmer control is set to OFF. The ground enable will turn both lights on.



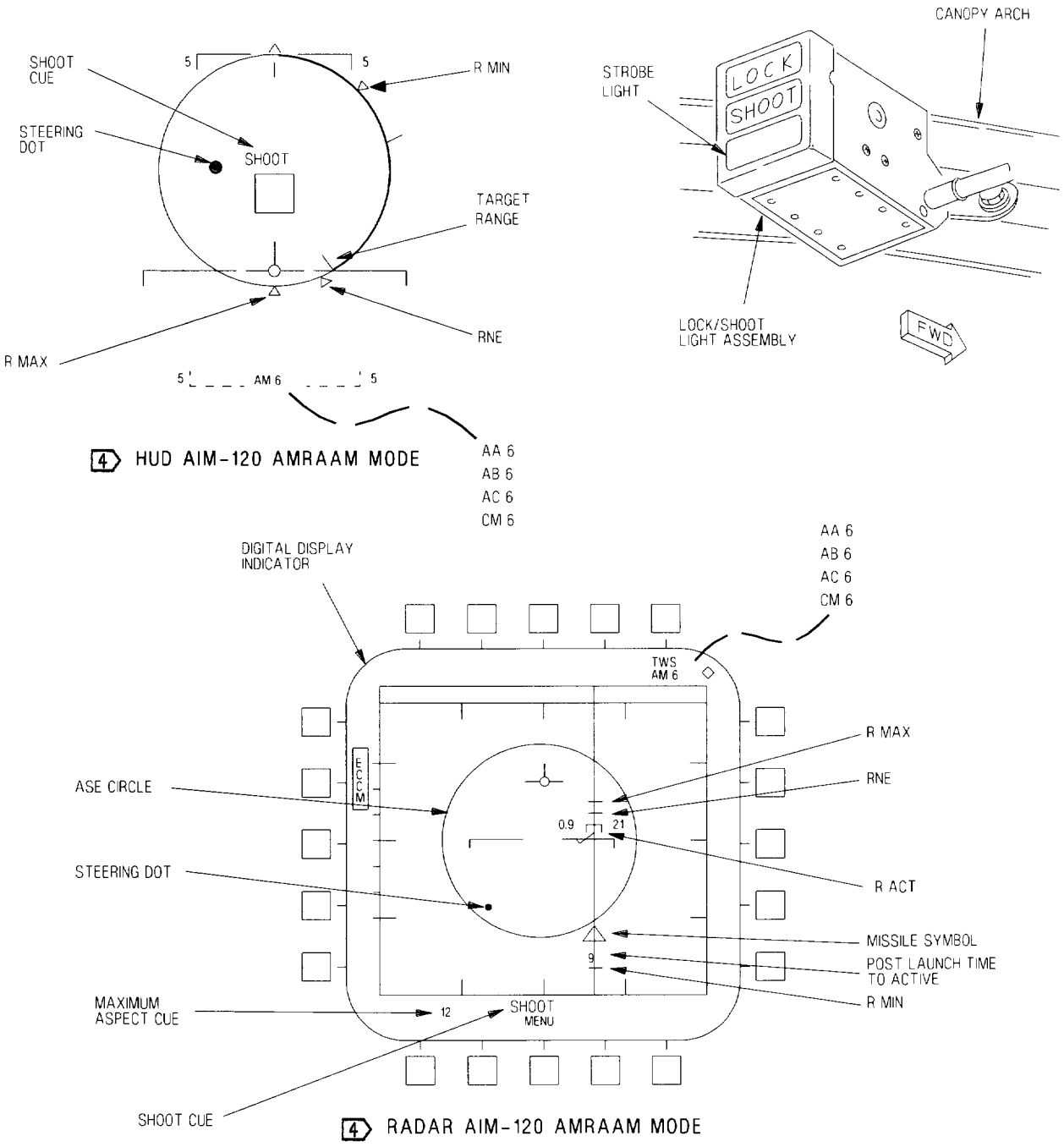
03300101

Figure 1. Lock/Shoot Light Display (Sheet 1)



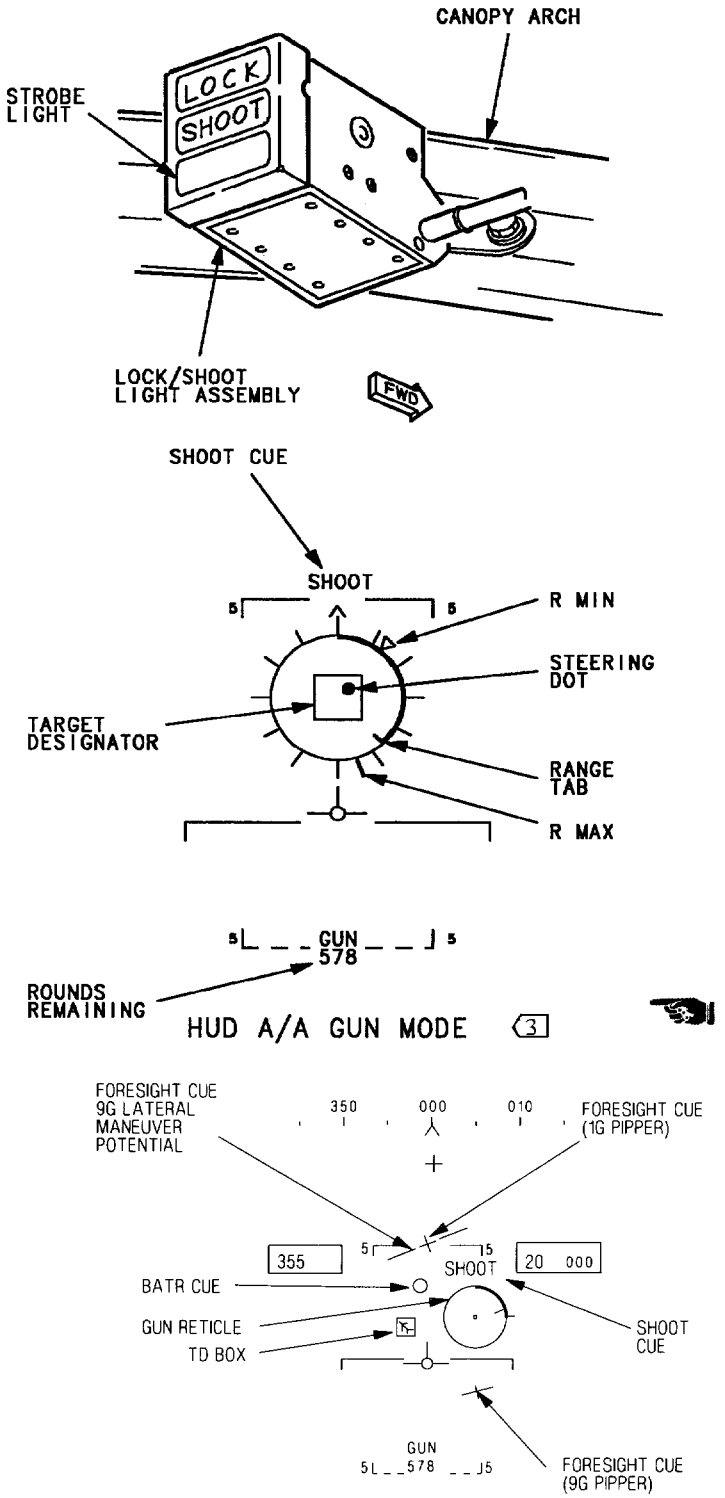
03300102

Figure 1. Lock/Shoot Light Display (Sheet 2)



03300103

Figure 1. Lock/Shoot Light Displays (Sheet 3)



03300104

Figure 1. Lock/Shoot Light Display (Sheet 4)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000)

3 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

4 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

03300105

Figure 1. Lock/Shoot Light Displays (Sheet 5)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

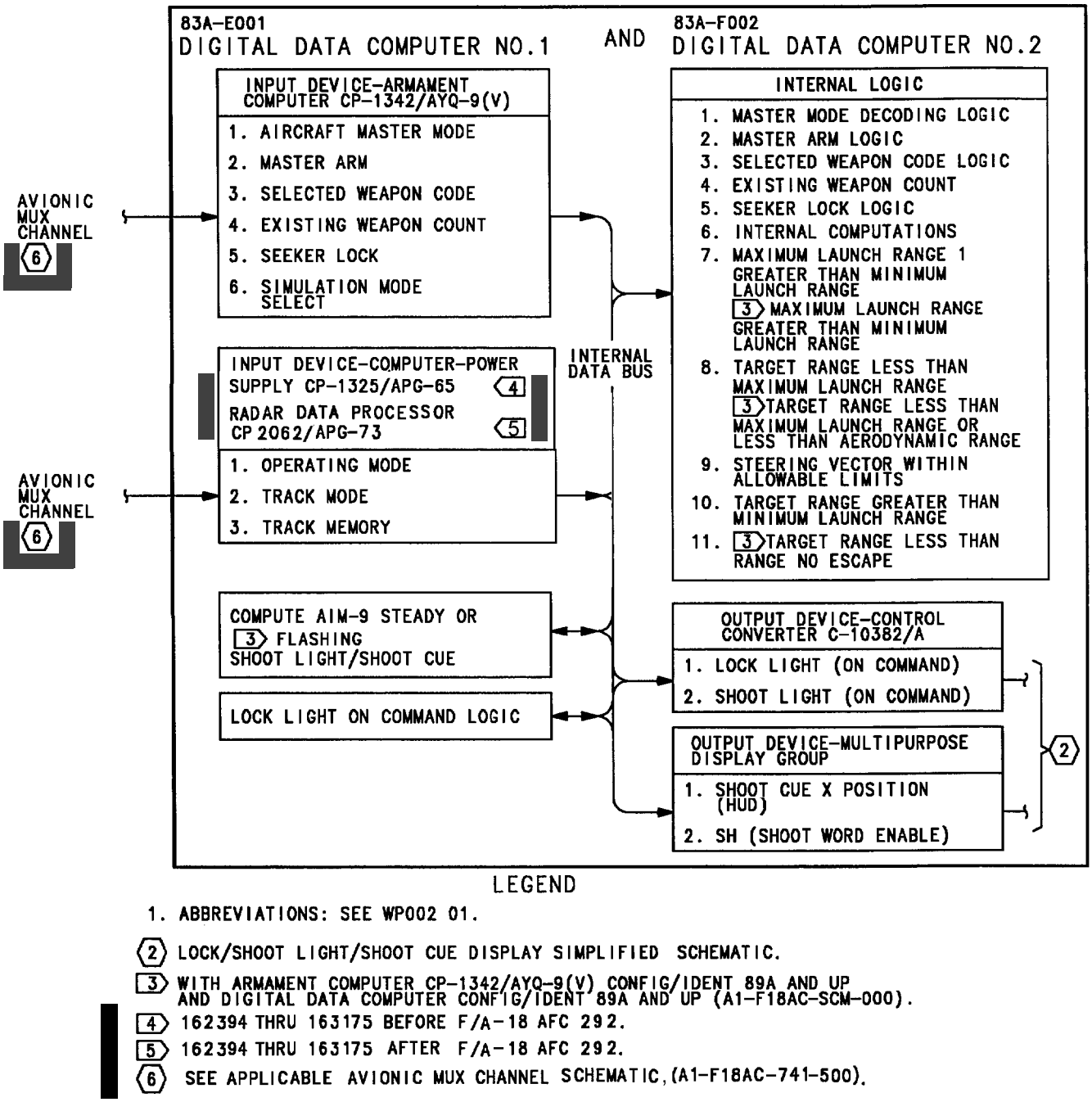
Subject	Page No.
AIM-7 Sparrow Lock/Shoot Light/Shoot Cue Simplified Schematic, Figure 3	4
AIM-9 Sidewinder Lock/Shoot Light/Shoot Cue Simplified Schematic, Figure 1	2
Gun/Rocket Lock/Shoot Light/Shoot Cue Simplified Schematic, Figure 2	3
Introduction	1
Lock/Shoot Light/Shoot Cue Display Simplified Schematic, Figure 4	5
AIM-120 AMRAAM Lock/Shoot Light/Shoot Cue Simplified Schematic, Figure 5	9

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 19	18 Oct 84	Shoot Light Power Supply Second Connector, Addition of (ECP MDA-F/A-18-00052C1)	1 Nov 84	-
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The schematics in this work package support the data in WP033 00.



LEGEND

1. ABBREVIATIONS: SEE WP002 01.

(2) LOCK/SHOOT LIGHT/SHOOT CUE DISPLAY SIMPLIFIED SCHEMATIC.

[3] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

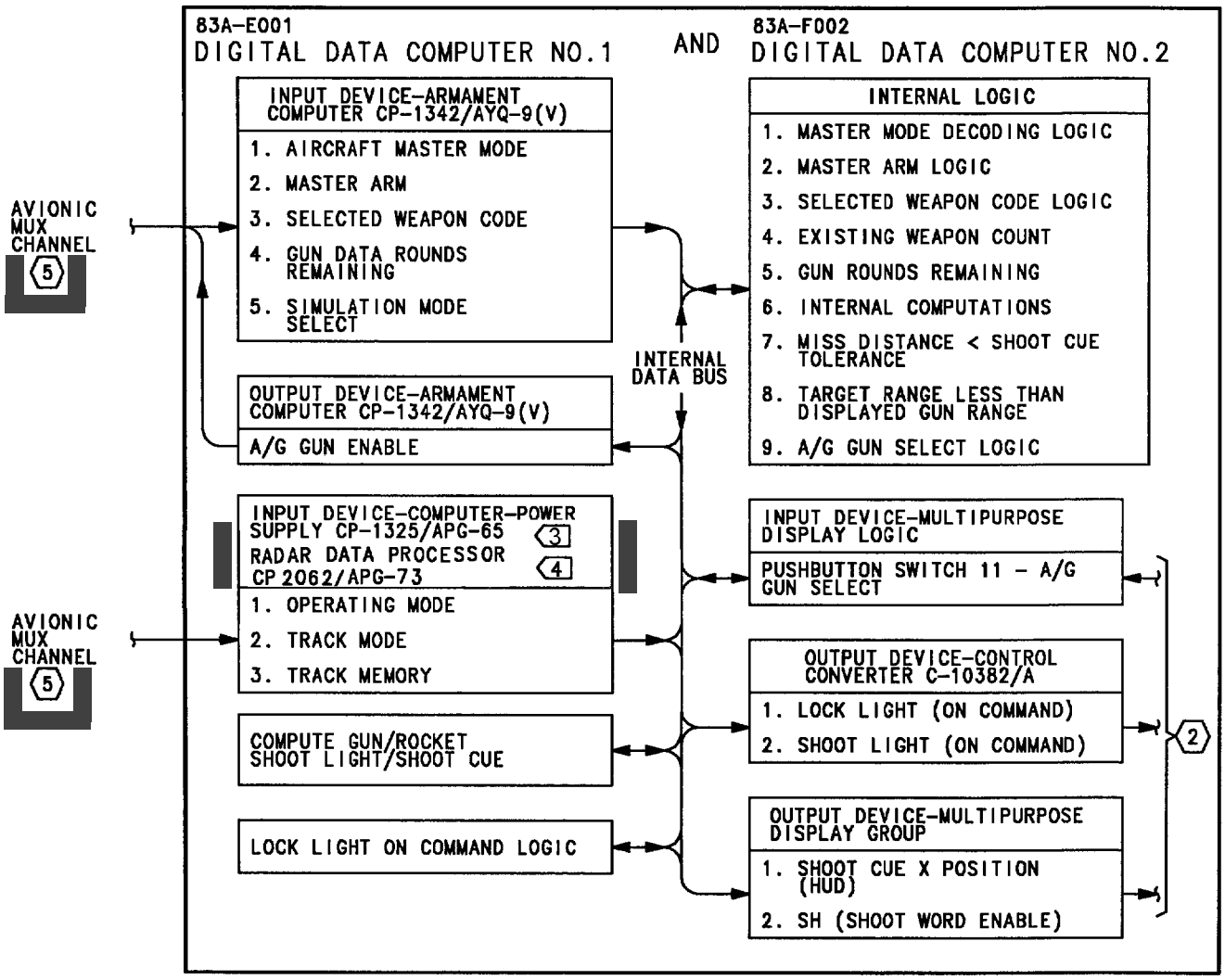
[4] 162394 THRU 163175 BEFORE F/A-18 AFC 292.

[5] 162394 THRU 163175 AFTER F/A-18 AFC 292.

(6) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

034001

Figure 1. AIM-9 Sidewinder Lock/Shoot Light/ Shoot Cue Simplified Schematic

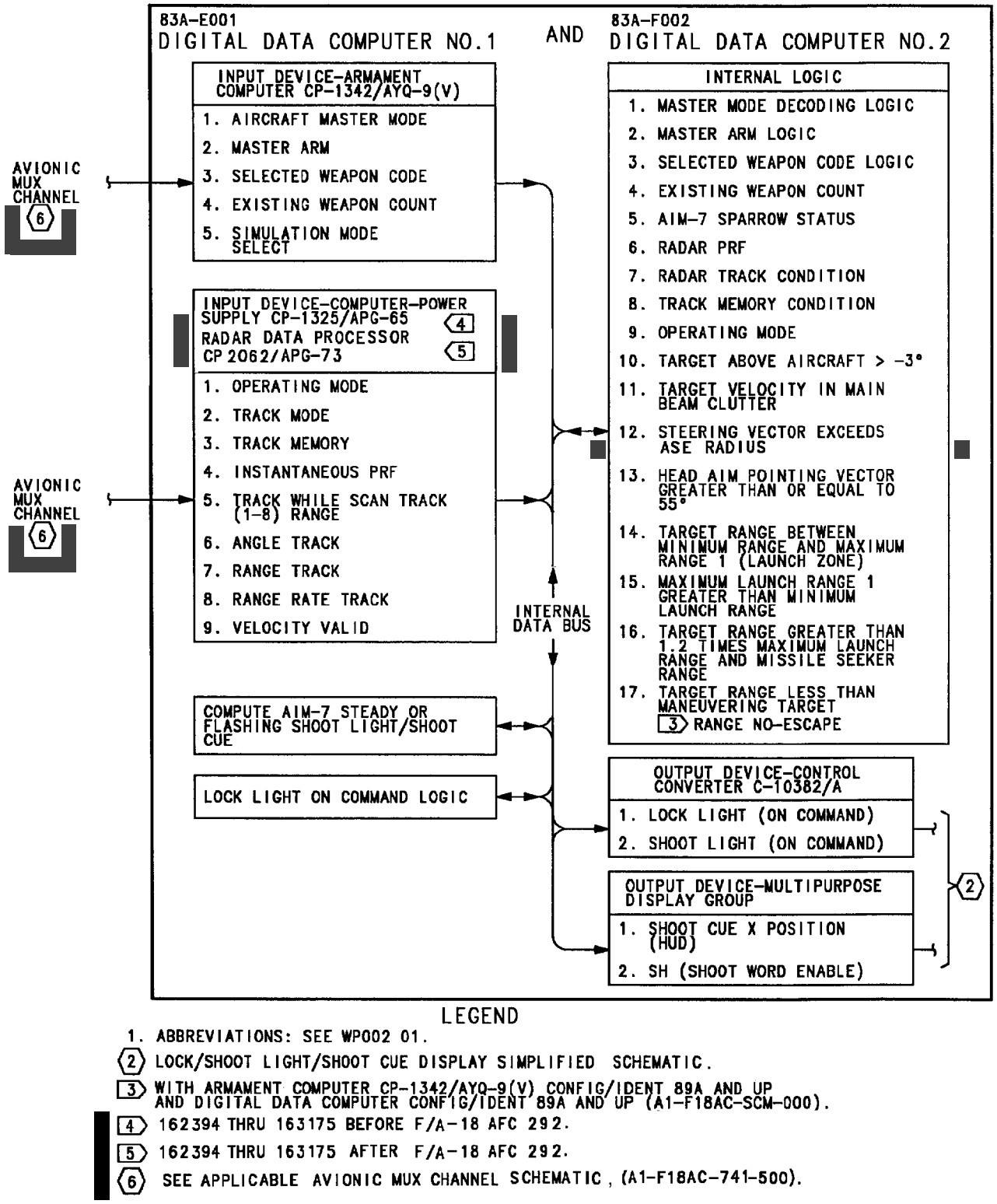


LEGEND

1. ABBREVIATIONS: SEE WP002 01.
2. LOCK/SHOOT LIGHT/SHOOT CUE DISPLAY SIMPLIFIED SCHEMATIC.
3. 162394 THRU 163175 BEFORE F/A-18 AFC 292.
4. 162394 THRU 163175 AFTER F/A-18 AFC 292.
5. SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

034002

Figure 2. Gun/Rocket Lock/Shoot Light/Shoot Cue Simplified Schematic

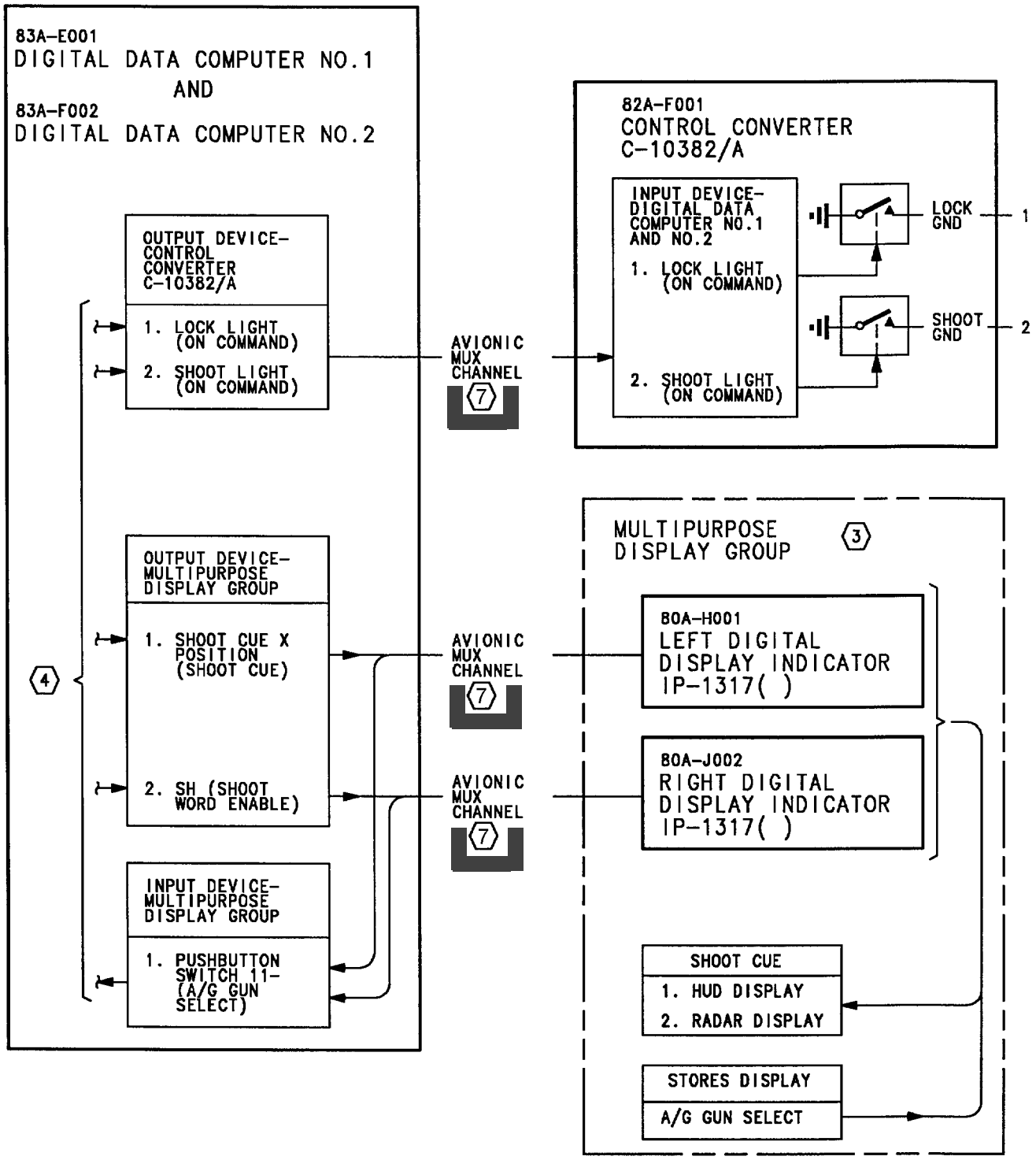


LEGEND

1. ABBREVIATIONS: SEE WP002 01.
(2) LOCK/SHOOT LIGHT/SHOOT CUE DISPLAY SIMPLIFIED SCHEMATIC.
[3] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).
[4] 162394 THRU 163175 BEFORE F/A-18 AFC 292.
[5] 162394 THRU 163175 AFTER F/A-18 AFC 292.
(6) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

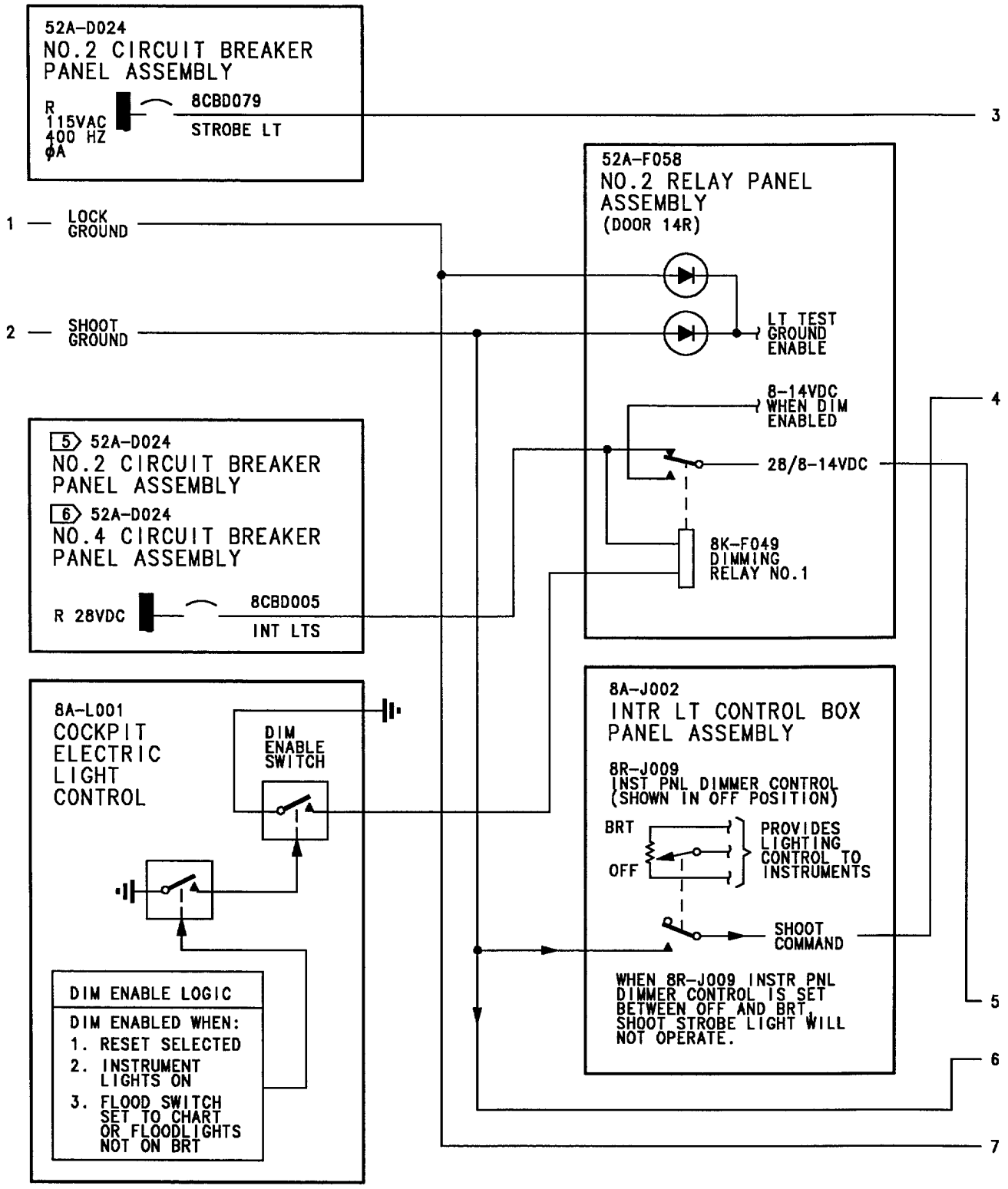
034003

Figure 3. AIM-7 Sparrow Lock/Shoot Light/Shoot Cue Simplified Schematic



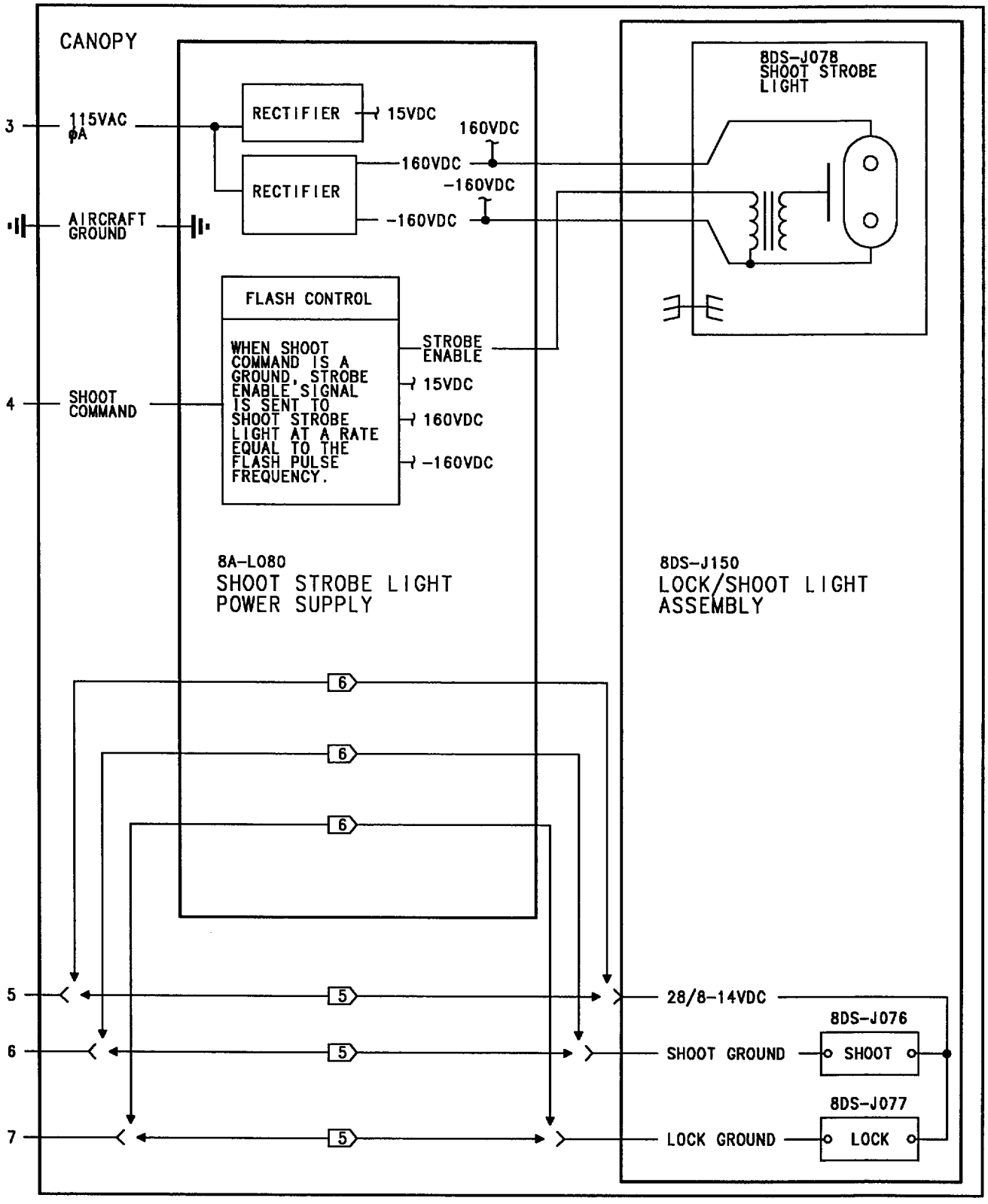
03400401

Figure 4. Lock/Shoot Light/Shoot Cue Display Simplified Schematic (Sheet 1)



03400402

Figure 4. Lock/Shoot Light/Shoot Cue Display Simplified Schematic (Sheet 2)



03400403

Figure 4. Lock/Shoot Light/Shoot Cue Display Simplified Schematic (Sheet 3)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2. NONSTANDARD SYMBOLS: SEE WP002 01.

(3) THE MULTIPURPOSE DISPLAY GROUP IS MADE UP OF THE LEFT DIGITAL DISPLAY INDICATOR IP-1317( ). RIGHT DIGITAL DISPLAY INDICATOR IP-1317( ). HEAD-UP DISPLAY UNIT AN/AVQ-28, HORIZONTAL INDICATOR IP-1350/A, AND ON F/A-18B THE REAR LEFT DIGITAL DISPLAY INDICATOR IP-1318( ). REAR RIGHT DIGITAL DISPLAY INDICATOR IP-1318( ), AND REAR CENTER DIGITAL DISPLAY INDICATOR IP-1318( ). FOR MULTI-PURPOSE DISPLAY GROUP, REFER TO A1-F18AC-745-100.

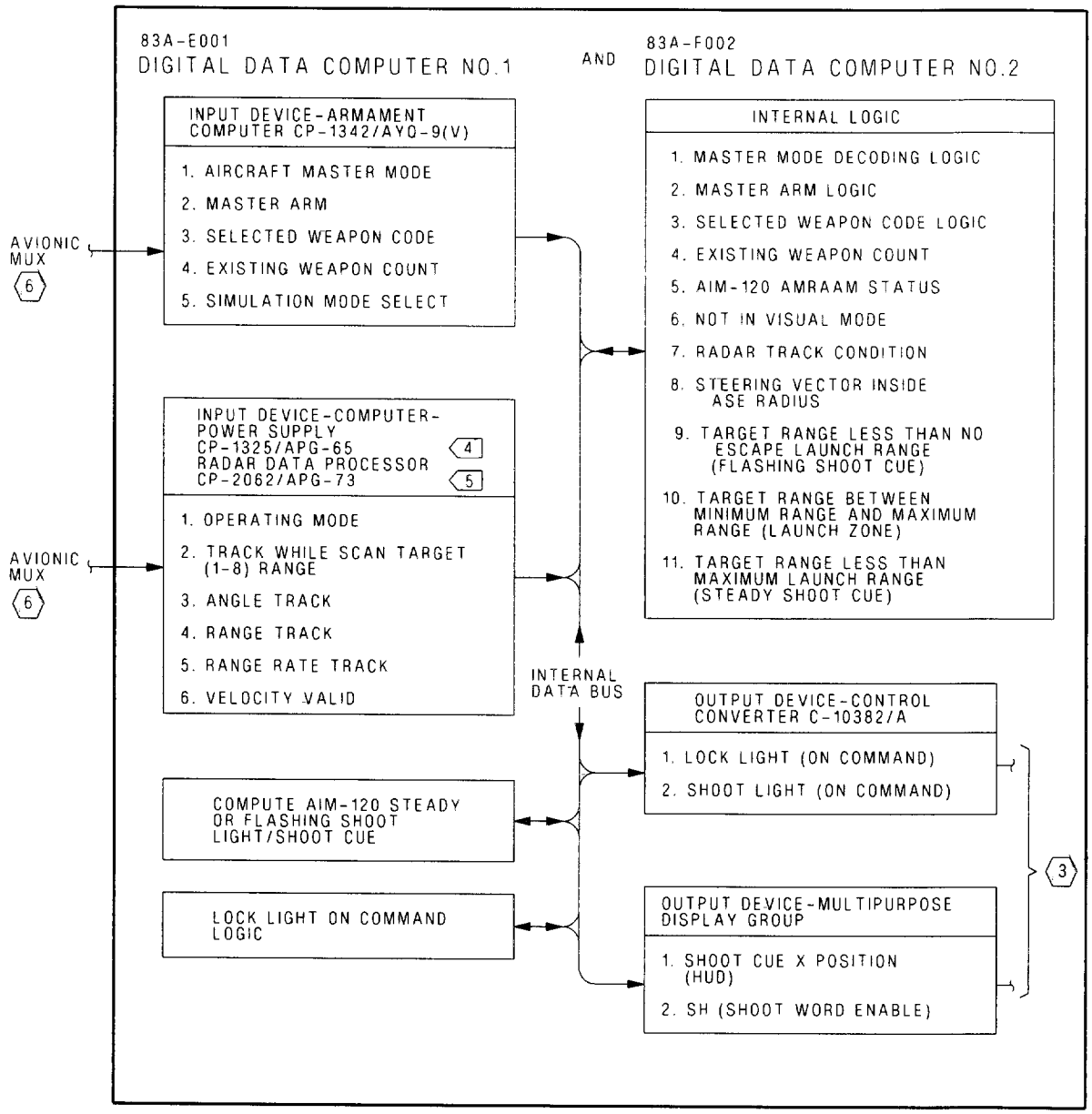
(4) APPLICABLE WEAPON LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC:
AIM-9 SIDEWINDER LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 1.
GUN/ROCKET LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 2.
AIM-7 SPARROW LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 3.
AIM-120 AMRAAM LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 5.

[5] 161353 THRU 161359 BEFORE F/A-18 AFC 19.

[6] 161360 AND UP; ALSO 161353 THRU 161359 AFTER F/A-18 AFC 19.

(7) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 4. Lock/Shoot Light/Shoot Cue Display Simplified Schematic (Sheet 4)



03400501

Figure 5. AIM-120 AMRAAM Lock/SHOOT Light/SHOOT Cue Simplified Schematic (Sheet 1)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2. NONSTANDARD SYMBOLS: SEE WP002 01.

〈3〉 APPLICABLE WEAPON LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC:
AIM-9 SIDEWINDER LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 1.
GUN/ROCKET LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 2.
AIM-7 SPARROW LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 3.
AIM-120 AMRAAM LOCK/SHOOT LIGHT/SHOOT CUE SIMPLIFIED SCHEMATIC, FIGURE 5.

4 161353 THRU 163175 BEFORE F/A-18 AFC 292.

5 161353 THRU 163175 AFTER F/A-18 AFC 292.

〈6〉 SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 5. AIM-120 AMRAAM Lock/SHOOT Light/SHOOT Cue Simplified Schematic (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - EXTERNAL FUEL TANK

STORES MANAGEMENT SYSTEM OPERATION

Reference Material

Stores Management System Locator WP014 00
Stores Management System External Fuel Tank Simplified Schematic WP036 00
Weapon Control System A1-F18AC-740-500
External Fuel Tank Schematic WP013 00

Alphabetical Index

Subject	Page No.
Aircraft Fuel Tank FPU/6( ) or FPU/8( )	2
BRU-32( ) Lock/Unlock	2
Displays	2
External Fuel Tank Operation	2
Fuel Tank Displays, Figure 1	4
Fuel Tank Ident	2
Fuel Tank Interface	2
Introduction	2
Jettison	3
Stores Inventory	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) external fuel tank operation is provided in this work package (WP). Additional SMS operational WPs are listed in WP001 00.

3. Refer to WP036 00 for the simplified external fuel tank operation schematic. The schematic shows the interface between the fuel tank, SMS and avionic systems required for fuel tank functions. The external fuel tank schematic (A1-F18AC-740-500, WP013 00) shows detailed external fuel tank operation.

4. Figure 1 shows displays related to external fuel tank operation.

5. Refer to WP014 00 for component locations.

6. EXTERNAL FUEL TANK OPERATION.

7. The SMS monitors weapon station, when external fuel tanks are loaded, for display and jettison functions.

8. Fuel tank operation in this work package is listed below:

a. Aircraft Fuel Tank FPU/6( ) or FPU/8( )

b. fuel tank interface

c. fuel tank ident

d. stores inventory

e. displays

f. BRU-32 lock/unlock

g. jettison

9. **AIRCRAFT FUEL TANK FPU/6( ) OR FPU/8( ).** Aircraft fuel tanks can be loaded on the pylons for weapon station 3, 5, and 7. Each FPU/6( ) tank holds 315 gallons of fuel. Each FPU/8( ) tank holds 330 gallons of fuel.

10. **FUEL TANK INTERFACE.** Fuel tanks are loaded on the BRU-32 rack on the pylons. Electrical interface is provided by a fuel tank jumper cable. On the inboard pylon stations, the jumper cable is connected between the fuel tank and AIR-GND connector on pylon weapon disconnect/stowage receptacle panel. On the centerline pylon station, the jumper cable is connected between the fuel tank and centerline pylon disconnect connector.

11. The jumper cables provide interface for the fuel system tank functions and provides a ground ident and tank ident interface with the weapon station command signal encoder-decoder.

12. **FUEL TANK IDENT.** The fuel tank ident is a discrete ground signal sent to the weapon station command signal encoder-decoder. The ident signal is made available on the armament mux bus for use in the armament computer. The Armament Computer CP-1342/AYQ-9(V) uses the ident for stores initialization, inventory, and select functions.

13. **STORES INVENTORY.** The fuel tank code of 01 is set on the weapon insertion panel ARMAMENT switches L INBD, CL, and R INBD.

14. The weapon inventory function provides the weapon idents and lock/unlock monitoring. The lock/unlock status for all stations is sent to the mission computer (MC) system for the display logic.

15. **DISPLAYS.** The MC system displays “1 FUEL” on the stores display wing form on Digital Display Indicator (DDI) IP-1317( ). The lock/unlock status (LKD, ULK, TSN) for stations carrying fuel tanks is displayed as part of the stores displays, under FUEL, regardless of gear status (up or down). Figure 1 shows the fuel displays. The 1 FUEL display is removed when fuel tanks have been released from 3, 5, or 7 and separation is complete.

16. **BRU-32( ) LOCK/UNLOCK.** The wing pylon weapon station encoder-decoders or right fuselage encoder-decoder control the BRU-32 when a fuel tank is loaded on the station.

17. When a fuel tank is loaded, switches S3 and S4 in the BRU-32 close when the hooks are closed. The switches provide a ground for the lock/unlock circuits and sends the store aboard BRU-32 to the encoder-decoder.

18. The lock and unlock coils of the actuator control relay are energized by 28vdc from the ground safety handle or a lock and unlock command from the encoder-decoder. Either function causes the linear actuator to drive to the selected position.

19. Internal functions of the armament computer use the lock/unlock status to enable jettison release

logic and control the lock/unlock commands. The lock command is enabled when the aircraft gear is down. Unlock is enabled as a function of all gear up and locked and when SELECT JETT switch is set to any position other than SAFE.

20. **JETTISON.** The SMS enables fuel tank jettison from the bomb ejector racks. The bomb ejector racks function the same as during bomb release. Jettison can be done through select jettison switches or emergency jettison switch.

21. **Selective Jettison.** To selective jettison the pylon fuel tanks, the switch settings and functions listed below must be done:

a. All gear up and locked must be set.

b. JETT STATION SELECT switches LI/RI/CL pressed to on.

c. SELECT JETT switch set to RACK LCHR or STORES.

d. MASTER switch set to ARM.

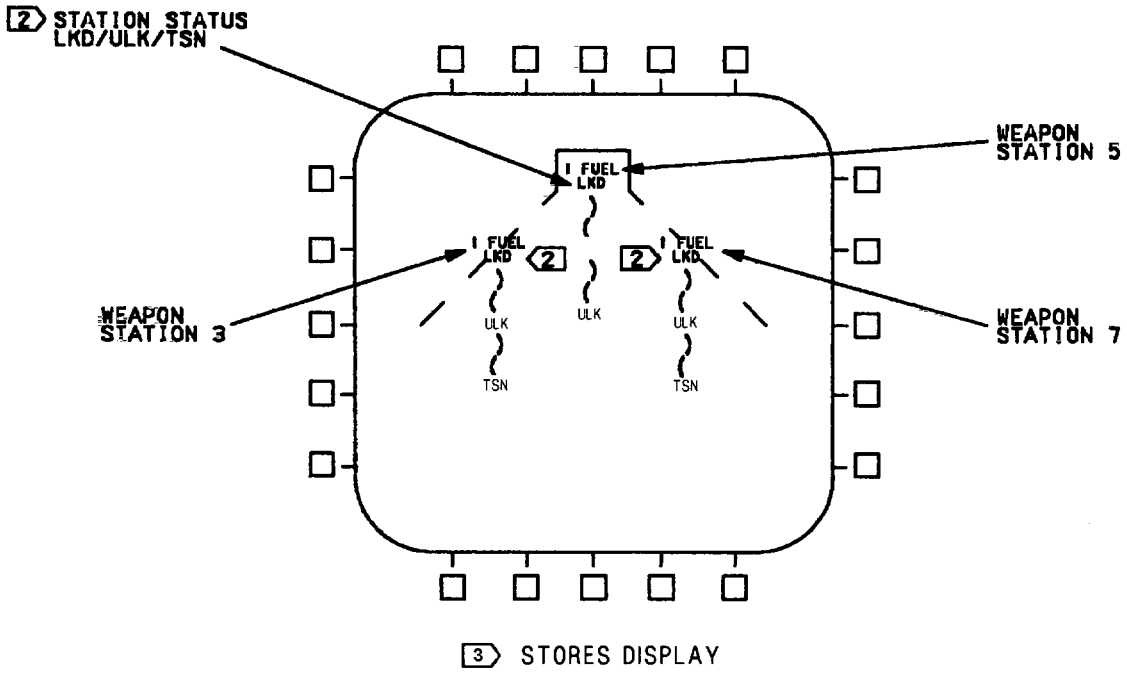
e. JETT switch pressed.

22. When the fuel tank does not release from the BRU-32, the auxiliary release function can be done. This is done by setting the AUX REL switch to ENABLE and repeating the selective jettison function listed above. Auxiliary release enables the auxiliary cartridge in the BRU-32 to allow a gravity release of the fuel tank.

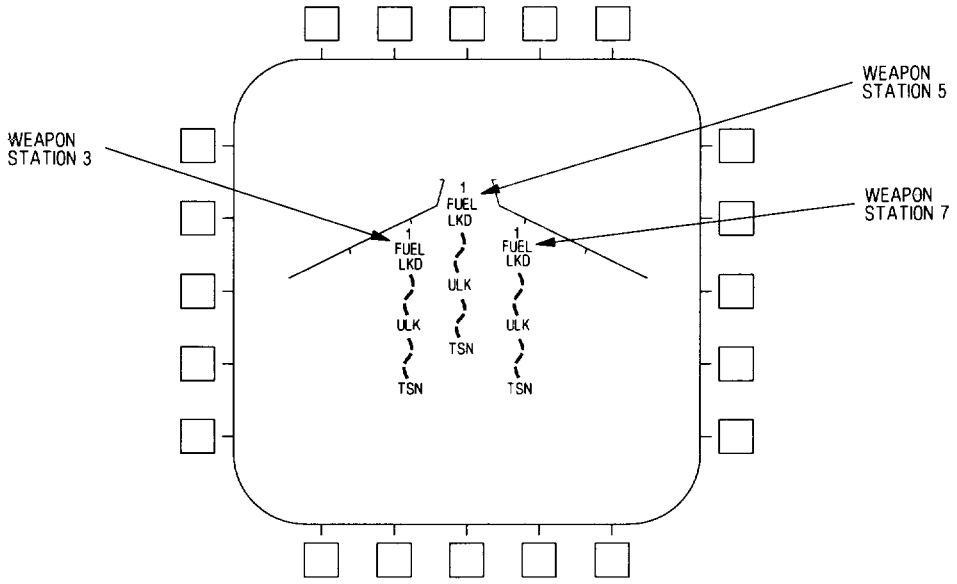
23. **Emergency Jettison.** The emergency jettison function of the pylon and fuselage fuel tanks can be done by doing the switch settings and functions listed below:

a. LDG GEAR handle up or right main landing gear weight off wheels.

b. Pressing PUSH TO JETT pushbutton switch on EMERG JETT switch on the master arm control panel assembly. On F/A-18B the tank can also be emergency jettisoned by pressing PUSH TO JETT on the EMERG JETT control panel assembly in the rear cockpit.



3 STORES DISPLAY



4 STORES DISPLAY

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 85A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).

3 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

4 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

035001

Figure 1. Fuel Tank Display

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - EXTERNAL FUEL TANK SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

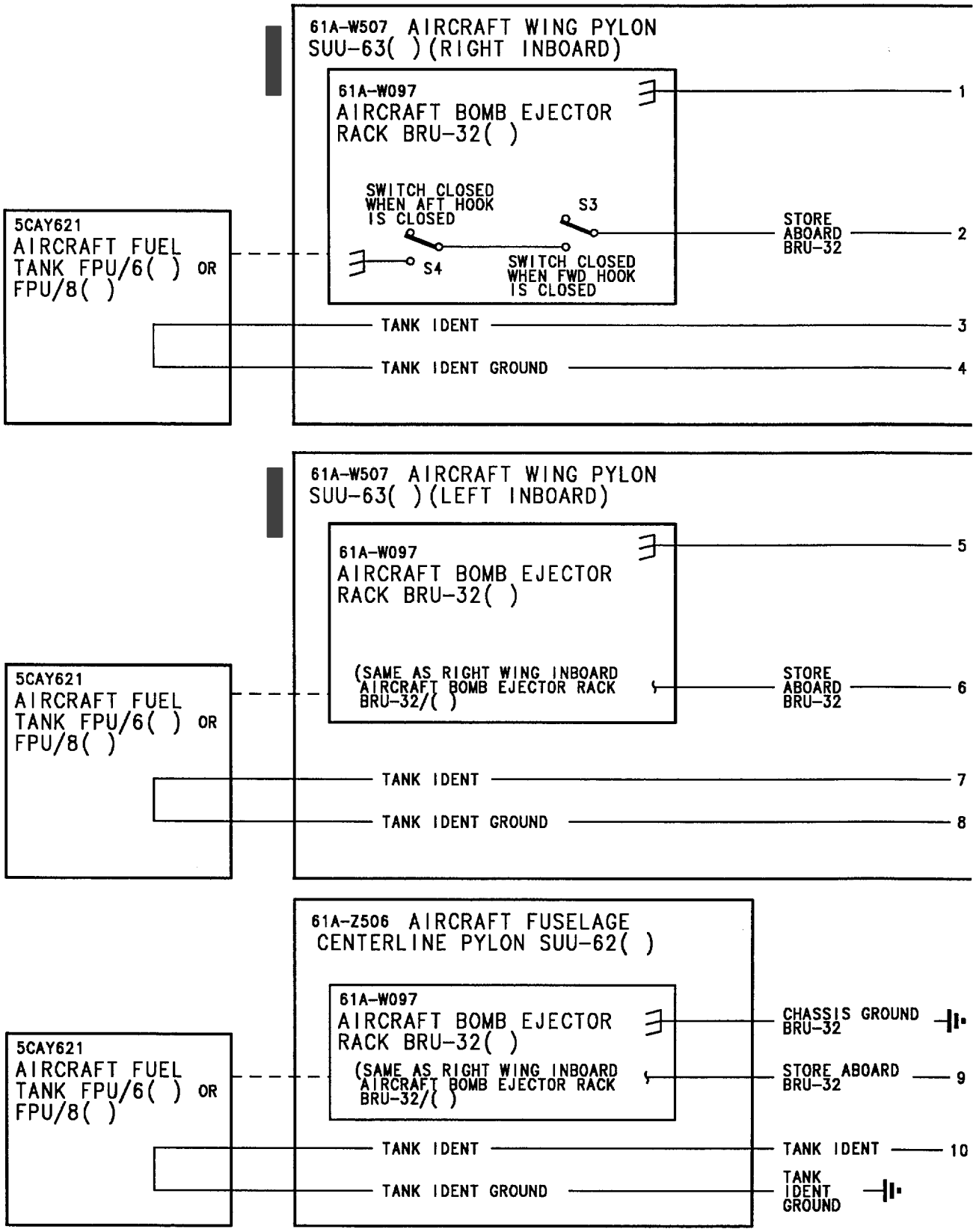
Subject	Page No.
External Fuel Tank Simplified Schematic, Figure 1	2
Introduction	1

Record of Applicable Technical Directives

None

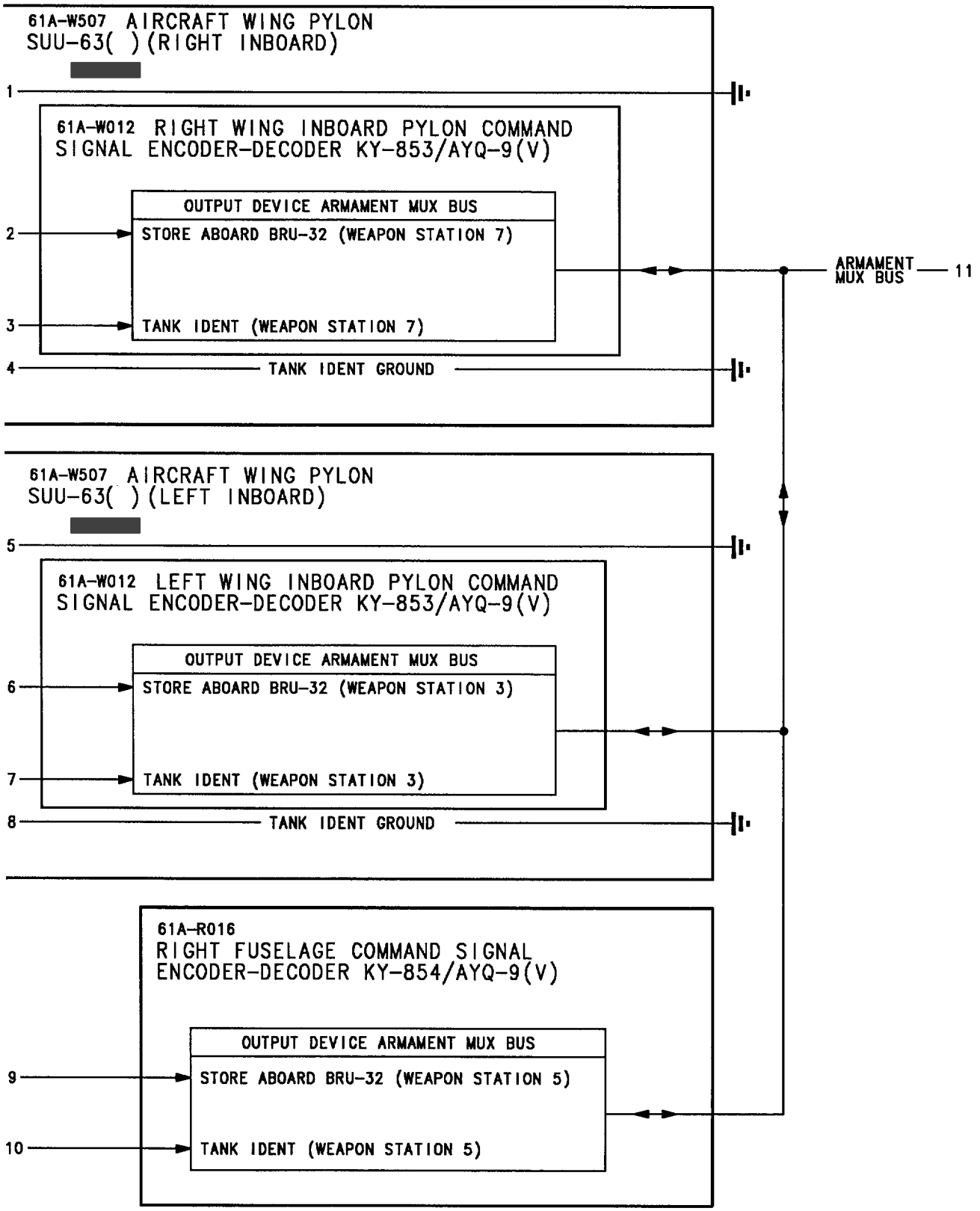
1. INTRODUCTION.

2. This work package provides support for the data in WP035 00.



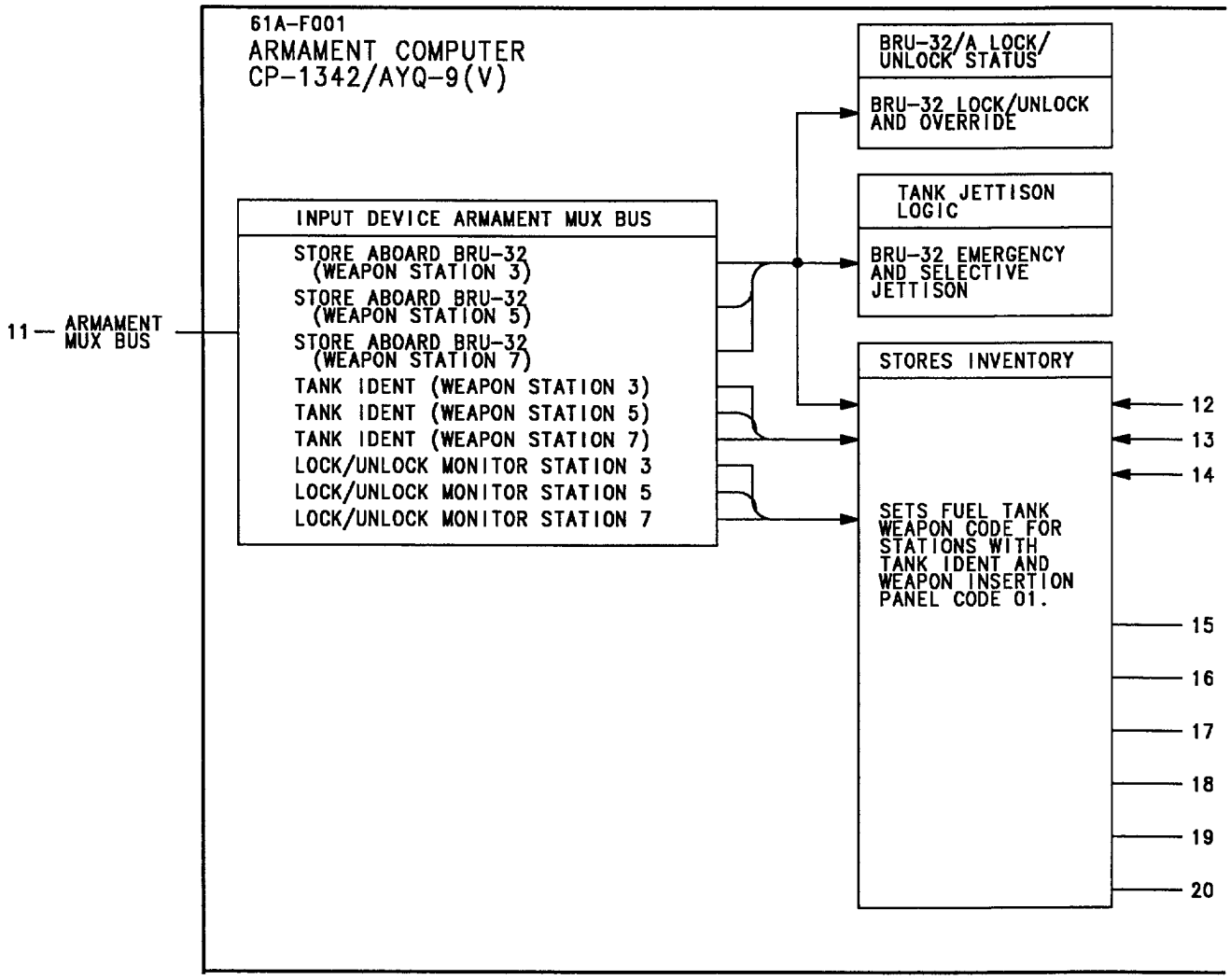
03600101

Figure 1. External Fuel Tank Simplified Schematic (Sheet 1)



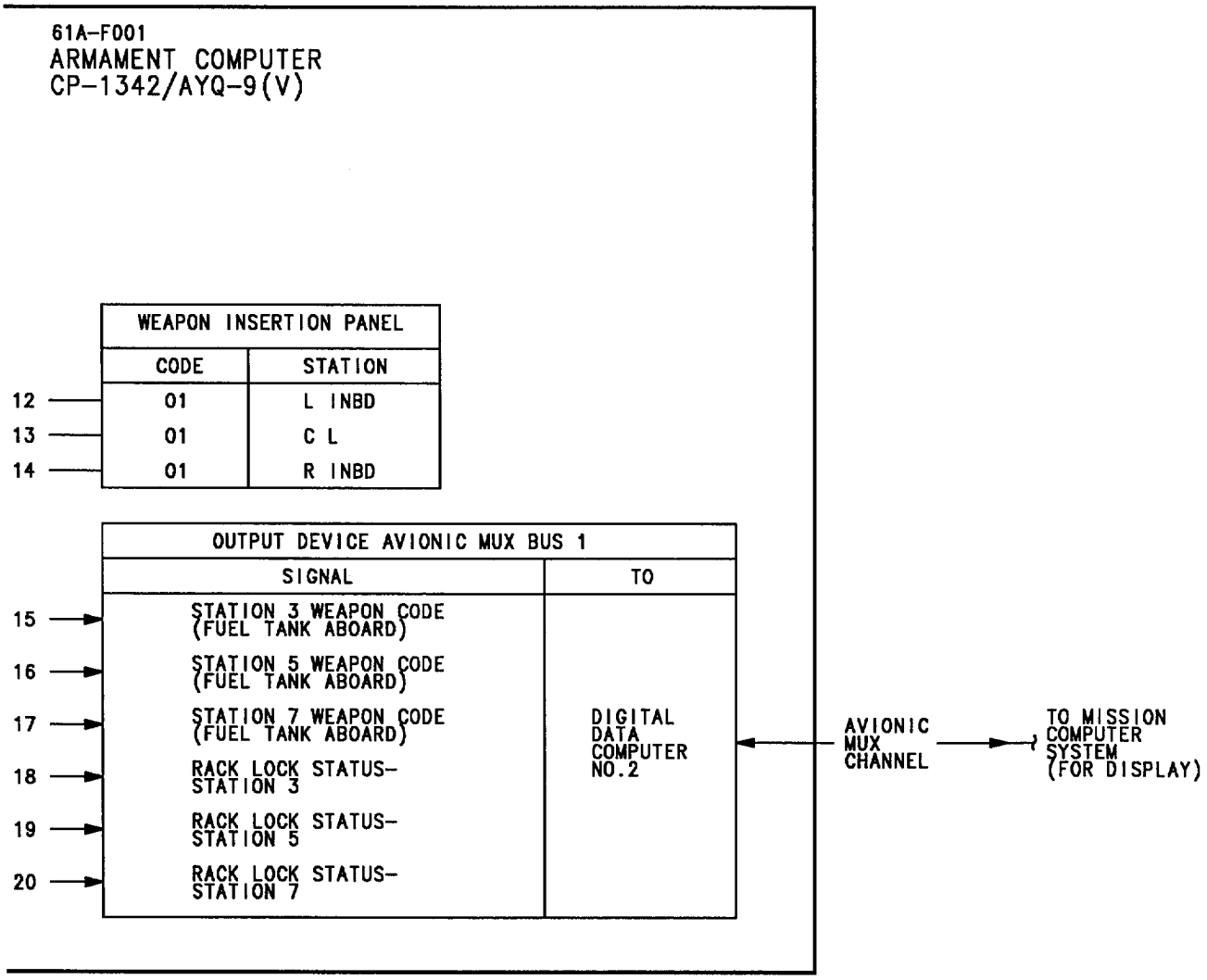
03600102

Figure 1. External Fuel Tank Simplified Schematic (Sheet 2)



03600103

Figure 1. External Fuel Tank Simplified Schematic (Sheet 3)



LEGEND

1. ABBREVIATIONS: SEE WP002 01.

03600104

Figure 1. External Fuel Tank Simplified Schematic (Sheet 4)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - BUILT-IN TEST

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

Stores Management System Locator WP014 00
Stores Management System Armament Mux Bus Data WP016 00
Stores Management System Built-In Test Tables WP039 00
Stores Management System Built-In Test Simplified Schematic WP038 00
Weapon Control System A1-F18AC-740-500
Built-In Test Schematic WP023 00
Built-In Test Avionic Interface Schematic WP024 00

Alphabetical Index

Subject	Page No.
Armament Computer Tests	5
BIT Fault Indicators	3
BIT Modes	3
Built-In Test Displays, Figure 1	11
Built-In Test Operation	2
Command Signal Encoder-Decoder Tests	6
Displays	2
Introduction	1
SMS BIT Interface	2
SMS BIT Status Message Displays, Table 1	8
System Maintenance Codes, Table 2	9
Special Tests	7

Record of Applicable Technical Directives

None

1. INTRODUCTION.

2. Stores Management System (SMS) built-in test (BIT) operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP038 00 for the simplified built-in test schematic. The components tested and the avionic interface with the mission computer (MC) system is shown in the schematic. The command signal encoder-decoder shown is typical for all nine encoder-decoders. Detailed BIT operation is shown in A1-F18AC-740-500, WP023 00, Built-In Test Schematic and WP024 00, Built-In Test Avionic Interface Schematic.

4. Figure 1 shows displays related to built-in test operation.

5. Refer to WP014 00 for component locations.

6. BUILT-IN TEST OPERATION.

7. The SMS built-in test function provides automatic and initiated testing of the operational status for the system components.

8. The Armament Computer CP-1342/AYQ-9(V) and Command Launch Computer CP-1001( )/AWG use BIT data internally for weapon computations. Fail information is also sent to the MC system. The MC system stores the fail data and provides the interface control with the multipurpose display group and maintenance status display and recording system for display.

9. The BIT operation in this work package is provided as listed:

a. SMS BIT interface

b. displays

c. BIT fault indicators

d. BIT modes

e. armament computer tests

f. command signal encoder-decoder tests

g. Special tests

10. **SMS BIT INTERFACE.** The armament computer and command launch computer interface the MC system with equipment ready discretes and the avionic mux bus. BIT select and status data is transmitted to/from the SMS and MC system on the avionic mux bus. The equipment ready signal is sent to the MC system to aid in determining the status of the armament computer operating status.

11. The MC system uses the avionic mux bus to send displays for BIT to the left Digital Display Indicator (DDI) IP-1317( ) and Signal Data Recorder RO-508/ASM-612. The MC system uses the avionic mux bus when BIT displays are selected on the right DDI IP-1317( ).

12. The armament mux bus transmits the to/from BIT data between the armament computer and nine command signal encoder-decoders. Discrete signals are also used to turn on the encoder-decoders, command launch computer, and Electrical Fuzing Power Supply PP-6419/AWW-4(V) during BIT.

13. **DISPLAYS.** SMS BIT status data is shown on the left/right DDI IP-1317( ) and nose wheelwell DDI ID-2150/ASM-612. Figure 1 shows the BIT displays listed below:

a. BIT control display

b. maintenance BIT control display

c. configuration display

d. stores display

e. ADV BIT

f. system maintenance codes

14. **BIT Control Display.** This display is selected from the MENU display when BIT pushbutton switch is pressed. BIT status displays for SMS are displayed as well as other aircraft avionic systems. The SMS BIT status messages that can be displayed are provided in table 1 with a description of the status display.

15. Initiated BIT is selected from the BIT control display. Pressing the SMS/CLC/WPNS pushbutton switch starts the initiated BIT. SMS is not displayed when aircraft has weight off wheels. With weight off wheels, CLC/WPNS is displayed to enable command launch computer and high speed anti-radiation missile (HARM) initiated BIT inflight.

16. AWW-4 status is set not ready (NOT RDY) during SMS initial (power on) BIT. AWW-4 status is set IN TEST during SMS and AWW-4 initiated BIT. AWW-4 status displayed as GO or DEGD (degraded) at completion of initiated BIT. AWW-4 and WPNS status is not displayed during SMS maintenance BIT.

17. WPNS status is set NOT RDY when SMS or CLC status is NO GO or NOT RDY. WPNS status is also set NOT RDY if HARM is not loaded on the aircraft. WPNS status is the same as CLC status during initiated BIT. When initiated BIT is complete WPNS status is displayed at the WPNS status location.

18. The STOP pushbutton switch option is available from this display. Pressing the STOP pushbutton causes the BIT operation to stop.

19. **Maintenance BIT Control Display.** This BIT display is selected by pressing the MAINT pushbutton switch from the BIT control display. When the pushbutton switch is pressed, the BIT control display is replaced by the maintenance BIT control display. The display enables the SMS pushbutton switch that starts the maintenance BIT.

20. When the SMS pushbutton switch is pressed, the SMS initiated BIT is started. At the end of the initiated BIT, the switch test options SJET, PCKL, TRIG, and SSP are displayed. The switch test options GO status is displayed after the switch acronym during the maintenance BIT switch test.

21. The STOP pushbutton switch option is available from the maintenance BIT control display. Pressing the STOP pushbutton switch causes the BIT operation to stop.

22. **Configuration Display.** The configuration display is selected by pressing CONFIG pushbutton switch from the maintenance BIT control display. When the pushbutton switch is pressed, the configuration display appears with configuration identification numbers displayed to the right of the programmable components. CONFIG pushbutton switch is boxed on the configuration display to indicate selection.

23. CONFIG/IDENT numbers displayed on the configuration display can be a 3 or 4 character number corresponding to the computer program loaded. The number displayed represents the operational flight program (OFP) of the programmable component. A1-F18AC-SCM-000 provides for compatibility of OFP versus aircraft configuration.

24. **Stores Display.** The stores display is selected by pressing the STORES pushbutton switch on the MENU display or selecting A/A or A/G aircraft master mode. If a A/G weapon with video/display was selected last, the stores display is replaced by that A/G weapon video/display. When a store is loaded on a weapon station, the station status is displayed below the weapon(s) on the wingform. The two station status messages that are displayed as a result of BIT are FAIL and DEGD.

25. BIT status of FAIL or DEGD are displayed for gun. Nothing is displayed if gun system status is off or go.

26. **ADV BIT.** The ADV BIT is displayed when the MC system receives a BIT fail from any of the aircraft avionic systems. If not previously displayed, a fail status from the SMS will cause ADV BIT to be displayed on the LDDI.

27. **System Maintenance Codes.** When the MC system receives a fail indication from the SMS, the data is sent to the signal data recorder. The recorder sends the data to the nose wheelwell DDI for system maintenance code displays. The SMS system maintenance codes that can be displayed are shown in table 2. Table 2 lists the codes that can be displayed and the component/function failure.

28. **BIT FAULT INDICATORS.** On 161353 THRU 161987, each encoder-decoder has a BIT latch indicator. The BIT latch indicator is software disabled. Latch indications may occur but do not indicate a failed encoder-decoder. On 162394 AND UP, BIT latch indicators have been physically removed except for Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V), which is also not operational. When the armament computer determines that an encoder-decoder has failed, the armament computer removes the failed weapon station from the weapon release sequence and updates the encoder-decoder BIT status to the MC system. The electrical fuzing power supply does not have a fault indicator.

29. The armament computer and command launch computer fault indicators are set by internal BIT latch circuits when the component self-test fails. When the internal self-test fails, the fault indicator is set and the component will set the equipment ready to the MC system if not already set.

30. **BIT MODES.** The SMS BIT modes are listed below:

a. initial (power on) BIT

b. periodic BIT

c. initiated BIT

d. maintenance BIT

e. CLC/WPN BIT

31. **Initial (Power On) BIT.** The initial BIT is started when power is applied to the armament computer. Initial BIT tests the system components and is used to establish the stores inventory and system initialization functions.

32. During power on BIT, the armament computer does an internal self-test. If the armament computer fails self-test, the component fault indicator is set and the equipment ready discrete to the MC system is enabled. If the self-test is good, the armament computer tests the command signal encoder-decoders installed on the aircraft.

33. During the encoder-decoder tests, the stores inventory is done to test the weapon idents. If a decoder circuit fails for a weapon ident not loaded on that station, the station is considered degraded but operable. If a decoder circuit fails a test for a weapon ident loaded on that station, the station is considered inoperable. If the detected failure later disappears, the station is returned to an operable status.

34. After the first 20 seconds of power on BIT the armament computer sends the equipment ready discrete to the MC system. When this discrete is received, the MC system tries to establish communication with the armament computer to satisfy the requirements for the terminal test word. The terminal test word verifies communication can be established on the avionic mux bus between the armament computer and the MC system. The armament computer accepts and responds to the terminal test word. However, not until after the first 180 seconds when power on BIT ends, will the armament computer process commands or send the initialization BIT data to the MC system.

35. **Periodic BIT.** Periodic BIT is the primary BIT mode of the SMS. This test is automatically done every 60 seconds when aircraft master mode is NAV. During this test, the armament computer and encoder-decoders, for stations loaded with weapons, are tested.

36. Selecting the A/A or A/G aircraft master mode will also start the periodic BIT. When A/A is selected, all stations with A/A weapons are tested for the type of weapon loaded on the station. When A/G is selected, all A/G stations with weapons are tested for the type of weapon loaded on the station.

37. Periodic BIT is also done when the all gear up and locked signal from the landing gear system changes state. This is done to establish the degrade assessment function of BIT. Degrade assessment evaluates the ability of the system to deliver the weapon load on the aircraft.

38. Program change is sent to the armament computer from the MC system when a bomb program is being selected or changed. When the periodic BIT on the armament computer and encoder decoders is interrupted, weapon processing begins within 50 milliseconds.

39. Periodic BIT is interrupted and normal operating mode resumed when the system functions listed below are set:

a. MASTER switch set to ARM and trigger detent no. 2 discrete is true or weapon release discrete is true, or

b. selective jettison discrete is true, or

c. program change bit from avionic bus is true.

40. Pressing SMS/HARM pushbutton switch causes the MC system to send the initiated BIT command to the armament computer. The armament computer does the same BIT functions as the power up BIT. Also, the initiated BIT has the ability to test the electrical fuzing power supply, command launch computer, and high current drivers in the encoder-decoders. Further BIT tests are done when a HARM ident exists on a weapon station.

41. Testing of weapon release (fire signal) circuits for the weapons is done by high current driver tests. The high current drivers are tested when the system functions listed below are set:

a. MASTER switch set to ARM.

b. ARMAMENT OVERRIDE switch set to OVERRIDE.

c. No weapon idents exist on the weapon stations.

d. Weapon insertion panel switches on the armament computer are all set to zero.

42. **Initiated BIT.** Initiated BIT is done when the SMS/CLC/WPNS or CLC/WPNS pushbutton switch on the BIT control display is pressed. With weight on wheels, the SMS/CLC/WPNS initiated BIT option is available. With weight off wheels,

CLC/WPNS is available to enable testing the command launch computer and HARM weapons inflight.

43. Pressing SMS/CLC/WPNS pushbutton switch causes the MC system to send the initiated BIT command to the armament computer. The armament computer does the same BIT functions as the power up BIT. Also, the initiated BIT has the ability to test the electrical fuzing power supply, command launch computer, and high current drivers in the encoder-decoders. Further BIT tests are done when a HARM ident exists on a weapon station.

44. Testing of weapon release (fire signal) circuits for the weapons is done by high current driver tests. The high current drivers are tested when the system functions listed below are set:

a. MASTER switch set to ARM.

b. ARMAMENT OVERRIDE switch set to OVERRIDE.

c. No weapon idents exist on the weapon stations.

d. Weapon insertion panel switches on the armament computer are all set to zero.

45. HARM weapons can be tested by selecting the HARM weapon and pressing the SMS/CLC/WPNS pushbutton switch. This BIT tests the priority missile. To test the other missiles, the next station must be selected and the SMS/CLC/WPNS pushbutton switch pressed again.

46. The electrical fuzing power supply is tested during initiated BIT. High voltage test (ground enable) and 28vdc AWW-4 enable from the armament computer turn on the power supply. The high voltage test is sent to the armament computer where it is monitored for a go condition.

47. **Maintenance BIT.** This BIT is done when the SMS pushbutton switch is pressed on the maintenance BIT control display. Pressing MAINT starts an SMS initiated BIT with the exception of the command launch computer and HARM weapons.

48. When the SMS initiated BIT is complete, the switch test (acronym) options are displayed on the BIT display. The switches tested are listed below:

Acronym	Switch
SJET	SELECT JETT switch
TRIG	gun/A/A missile trigger switch
PCKL	A/G weapon release switch
SSP	JETT STATION SELECT switches

49. To test the switches, all functions of the switch are activated. When the armament computer receives all of the discrete switch activate signals for the switch under test, a GO is displayed on the DDI next to the switch acronym.

50. **CLC/WPNS BIT.** When HARM weapons are loaded on the aircraft, initiated BIT can be done on the weapons. The weapon BIT can be done on the ground or inflight using the BIT control display pushbutton switch SMS/CLC/WPNS (ground) or CLC/WPNS (inflight).

51. To do HARM tests, a HARM station is selected and the command launch computer turned on by the armament computer. During ground BIT the armament computer turns on the 3ϕ power control to the selected station. The armament computer also selects the HARM switching relays for the selected weapon station.

52. The command launch computer does an internal BIT. During this test, interface signals with the armament computer and Countermeasures Computer CP-1293/ALR-67(V) are tested. The BIT status messages are sent to the MC system for BIT status displays and set maintenance codes for the nose wheelwell DDI.

53. During WPN BIT, the command launch computer sends test signals to the weapon and monitors the weapon to determine the missile status. These signal results are interpreted as missile fail or video degraded. The status of the station being tested is displayed by WPN on the BIT control display. Maintenance codes are also set on the nose wheelwell DDI.

54. **ARMAMENT COMPUTER TESTS.** The BITs of the armament computer are listed below:

a. internal memory/timing

b. ARMAMENT/FUZING weapon insertion panel test

c. discrete input monitor test

d. discrete output monitor test

e. relay switching function

f. weapon circuit tests

g. equipment ready/terminal test

55. **Internal Memory/Timing Tests.** The internal memory/timing tests are used to verify the ability of the armament computer to do BIT and weapon functions. This BIT tests the intervalometer, interrupt controller, write protection, memory parity, PROM, and software (program) check sum.

56. **Armament/Fuzing Weapon Insertion Panel Test.** Initial BIT tests the switch setting of the ARMAMENT and FUZING switches for each of the pylon stations and wingtip stations. The status of the switch settings are stored in memory. The switch settings are used to determine station status/load malfunctions during the weapon inventory power on BIT function.

57. **Discrete Input Monitor Test.** The discrete inputs to the armament computer are tested to determine the input state. The armament computer requires this information when determining the BIT tests that can be safely run.

58. The switches that could cause a weapon release are tested to make sure they are in the off state. These switches are listed below:

a. A/G weapon release

b. gun/A/A missile trigger

c. SELECT JETT pushbutton

d. EMERG JETT pushbutton

59. If the monitor determines that one of the switches is on, the fail status is sent to the MC system. The MC system will enable the system maintenance code to be sent to the nose wheelwell DDI for display.

60. **Discrete Output Monitor Tests.** The armament computer commands the discrete output devices to off and then tests the outputs. The on state of an output circuit is a BIT fault of the armament computer.

61. **Relay Switching Function.** The HARM, video, and audio switching relays are commanded to off during initial BIT. The relays are then tested for the off state. A relay switch failure is an armament computer BIT fail.

62. **Weapon Circuits Tests.** During BIT, the circuits are tested that are required to process weapon prelaunch data. Weapon/store signals from the MC system are modified and converted to the armament mux bus format and sent to the weapon station encoder-decoders. These circuits are used/tested when the encoder-decoders functional tests are run. The tables in WP039 00 lists the weapon related signals tested during BIT.

63. **Equipment Ready/Terminal Test.** The armament computer sets the equipment ready discrete after the first 20 seconds of initial (power on) BIT is complete or when initial BIT detects an armament computer fail. When equipment ready is sent to the MC system, the MC system sends the terminal test word to the armament computer; however, the armament computer does not respond to the MC system commands until the power on BIT is complete.

64. After power on BIT is complete, the armament computer receives and returns the test word to the MC system. If the MC does not receive the return word, the message is sent over the remaining redundant avionic mux bus wire pair. If the armament computer does not return the message, the MC sets the armament computer fail system maintenance code and displays SMS NO GO and ADV-BIT advisory. If the armament computer responds to the second try, the MC system sets the armament computer (single) terminal fail system maintenance code.

65. **COMMAND SIGNAL ENCODER-DECODER TESTS.** The tests run on the weapon encoder-decoders are controlled by the armament computer by way of the armament mux bus. Armament mux bus data in WP016 00 lists the signals used to send BIT data to/from the encoder/decoders.

66. Each encoder-decoder has an overheat BIT monitor. Overheat status is sent to the armament computer and is then sent to the MC system. The overheat (fail) does not set the SMS maintenance code however; the overheat (OH) is displayed for the SMS BIT status display. The overheat is stored in the MC system.

67. The armament computer sends the BIT commands to the encoder-decoders and monitors the test results. When a fail is detected, the fail or degrade status is sent to the MC system for display on the DDI BIT displays and nose wheelwell DDI.

68. **SPECIAL TESTS.** Special tests for the SMS are defined as listed below:

a. memory load/verify

b. memory inspect

c. AIM-7/AIM-9 end to end testing

69. **Memory Load/Verify.** The program for the armament computer may be loaded and tested on the aircraft through use of the Computer Memory Loader/ Verifier (MLV) AN/ASM-607(V)5. The MLV is capable of loading and verifying memory, and controlling operation of the inertial navigation system (INS), radar, stores and mission computers. The MLV hooks up to the multiplex test connector, located in the nose wheelwell, left side. This connector has direct access to the avionic mux busses. The MLV contains a magnetic tape memory (MTM) set for storing MLV control programs and computer operational programs.

70. Program Loading Signal Interface Logic. A separate discrete line is furnished from the multiplex test connector to the armament computer to provide an initial program load (IPL) enable discrete logic line. MLV employs this discrete to prepare the computer for a transfer of data over the avionic mux bus. Transfer of memory load/read information and data shall be controlled by unique command words and status words received over the avionic mux bus.

71. During MLV load mode, three command words are provided to initialize the load mode and to transfer data which is to be loaded into the computer. These command words are listed below:

a. header information

b. memory load data

c. trailer information

72. During MLV read mode, two command words are provided to initialize the read mode and to transfer the data to be read from the computer. These command words are listed below:

a. header information

b. data request

73. The MLV provides these system functions when connected to an operational computer.

a. Save on magnetic tape memory (MTM), any program in the computer. MTM will store all necessary MLV control programs and computer programs.

b. Load and verify any computer program stored on the MTM.

c. Read any computer program for verification.

74. Armament Computer Programming Operations. Load/read functions of the MLV are applicable to the armament computer programming operations. When the MLV is being used to load/read the armament computer program, data is transferred over the avionic mux bus. Configuration display as described in this WP, presents the program load identification number for the armament computer program loaded.

75. **Memory Inspect.** Memory inspect is an initiated test which accesses computer memory locations for display and interpretation. It is used as a trouble-shooting aid to determine signal accuracy to and from Digital Data Computers No. 1 and No. 2. These signals are listed as mnemonics in system schematics manual (Weapon Control System, A1-F18AC-740-500).

76. Memory inspect feature is provided to allow the operator to inspect the memory contents of selected computers. This is done through use of the Electronic Equipment Control C-10380/ASQ and DDIs. Memory inspect option can be selected from any of the BIT control panel displays by selection of the MI button. When MI is selected, ADDR and DATA appear on the display and up-arrow (increment), and down-arrow (decrement) options are made available as shown in figure 1, in addition to what is already on the display.

77. The equipment control is also enabled to the memory inspect mode and the operator must enter a unit code for the desired computer and memory address from which data is desired. Up-arrow and down-arrow buttons on the memory inspect display, allow the operator to increment up or down from the entered address without need for re-entry.

78. **AIM-7/AIM-9 End to End Testing.** With AIM-7 End To End Tester 74D70050-1001 installed on station to be tested, the AIM-7 end to end test may be done at the end of maintenance bit by pressing cage/uncage switch on right throttle grip. Under TST for station tested, STDY, RDY or FAIL will be displayed. With AIM-9 End to End Tester 74D70050-1001 installed on station to be tested, the AIM-9 end to end test may be done at the end of maintenance bit by pressing cage/uncage switch on right throttle grip. Under TST for station tested, STBY, RDY or FAIL will be displayed.

Table 1. SMS BIT Status Message Displays

DISPLAY	DESCRIPTION	SMS	HARM	CLC [1]	WPNS [1] [2]	AWW4 [1] [2]
NOT RDY	System not turned on, system cannot be turned on or system not installed.	X	X	X	[3] X	X
SF TEST	Self test. Automatic initiated (power up) BIT.	X				X
IN TEST	System initiated BIT or maintenance BIT in test.	X		X	[4] X	X
GO	BIT test complete with no failures.	X		X	X	X
OPRNL GO	Displayed when stores management system failure has been detected that does not affect the system ability to deliver loaded weapons.	[1] X				
NO GO	System on but not communicating on avionic mux bus with mission computer system.	X		X		
DEGD	System failure detected and system operation is degraded.	X		X	X	X
DEGD OH	System failure detected and system component overheated.	X				
OH	System component overheated.	X				
RESTRT	Restart BIT. System did not respond to BIT command or did not complete BIT in allowed time.	X		X	[5] X	

NOTES

[1] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 85A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).

[2] Status not displayed when SMS in maintenance BIT.

Table 1. SMS BIT Status Message Displays (Continued)

DISPLAY	DESCRIPTION	SMS	HARM	1 CLC	1 2 WPNS	1 2 AWW4
3 Displayed as a function of SMS/CLC BIT status display, NO GO or NOT RDY, or if no HARM loaded.						
4 Displayed as a function of CLC IN TEST with HARM loaded.						
5 Displayed as a function of CLC RESTRT with HARM Loaded.						

Table 2. System Maintenance Codes

Maintenance Code	Failure
006	Armament Computer CP-1342/AYQ-9(V) terminal fail.
017	Command Launch Computer CP-1001( )/AWG terminal fail.
070	Armament Computer CP-1342/AYQ-9(V) fail.
071	Left Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) fail.
072	Left Wing Outboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
073	Left Wing Inboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
074	Left Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V) fail.
076	Right Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V) fail.
077	Right Wing Inboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
078	Right Wing Outboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail.
079	Right Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) fail.
080	Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V) fail.
081	Electrical Fuzing Power Supply PP-6419/AWW-4(V) fail.
082	EMERG JETT Switch fail.
083	SELECT JETT Switch fail.
084	GUN/A/A Missile Trigger fail.

Table 2. System Maintenance Codes (Continued)

Maintenance Code	Failure
085	A/G Weapon Release Switch fail.
[1] 375	Command Launch Computer CP-1001( )/AWG fail.
[1] 376	CLC/SMS Interface fail.
[1] 377	CLC/ALR-67 Interface fail.
[1] 378	Station 2 HARM Missile fail.
[1] 379	Station 3 HARM Missile fail.
[1] 380	Station 7 HARM Missile fail.
[1] 381	Station 8 HARM Missile fail.
[1] 382	Station 2 HARM Missile Interface degraded.
[1] 383	Station 3 HARM Missile Interface degraded.
[1] 384	Station 7 HARM Missile Interface degraded.
[1] 385	Station 8 HARM Missile Interface degraded.
[1] 391	Reserved for station 2 left AMRAAM fail.
[1] 392	Reserved for station 2 right AMRAAM fail.
[1] 393	Reserved for station 3 left AMRAAM fail.
[1] 394	Reserved for station 3 right AMRAAM fail.
[1] 396	Reserved for station 4 right AMRAAM fail.
[1] 400	Reserved for station 6 right AMRAAM fail.
[1] 401	Reserved for station 7 left AMRAAM fail.
[1] 402	Reserved for station 7 right AMRAAM fail.
[1] 403	Reserved for station 8 left AMRAAM fail.
[1] 404	Reserved for station 8 right AMRAAM fail.

NOTES

[1] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 85A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).

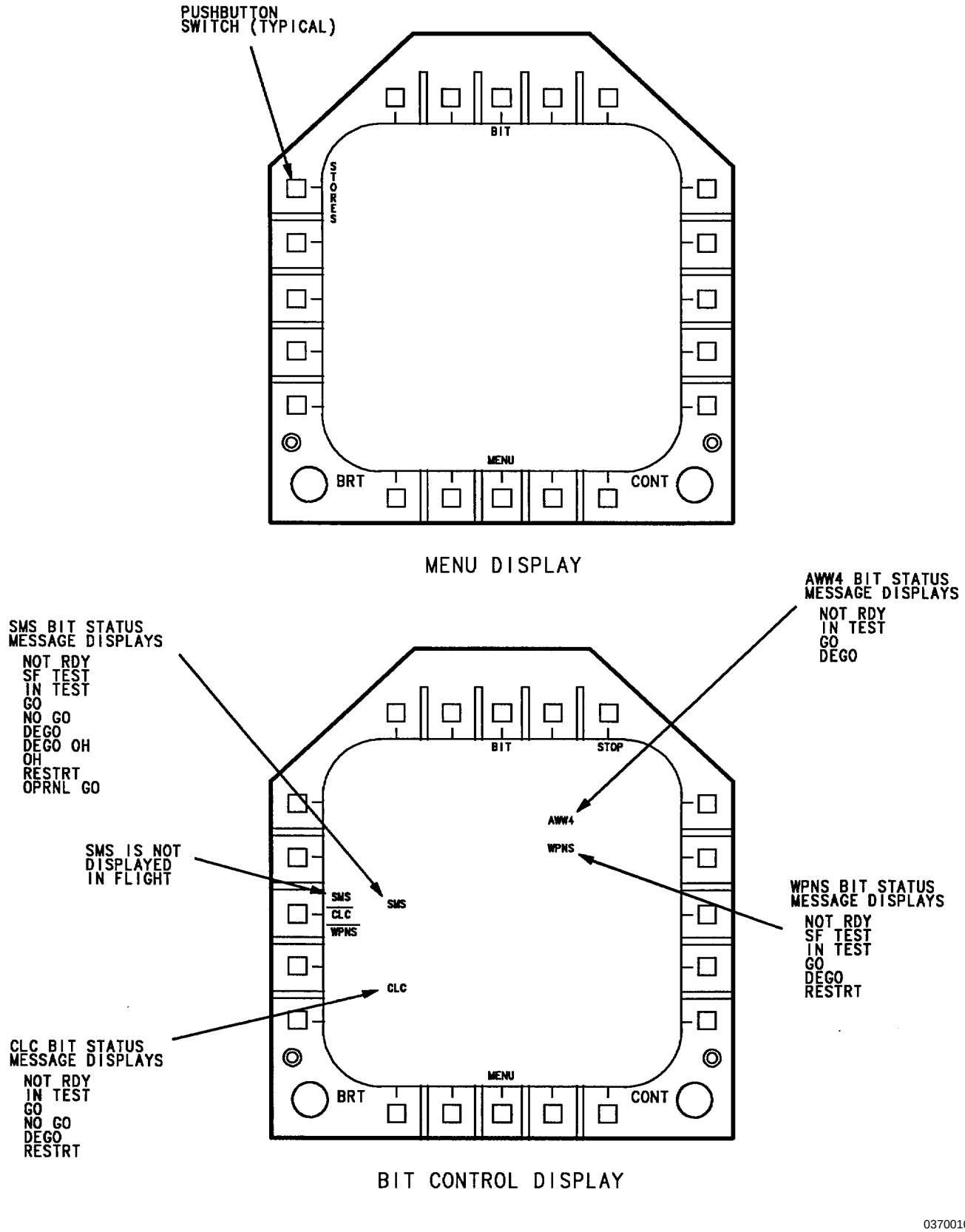
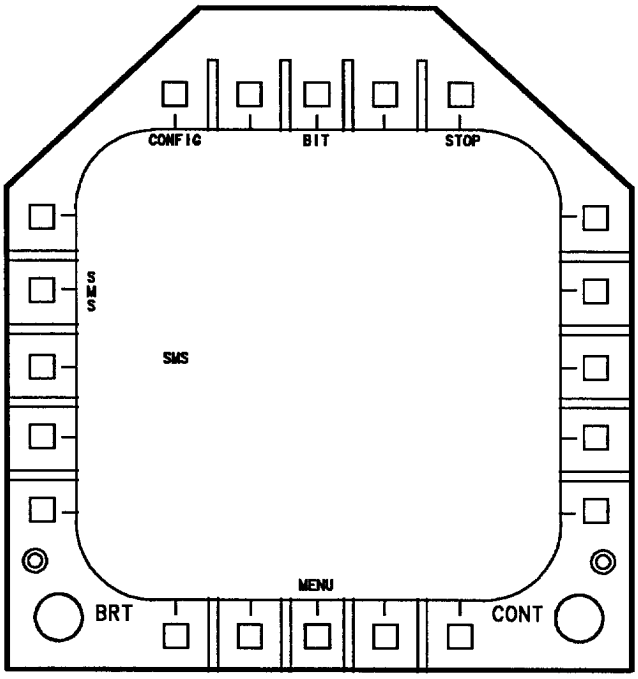
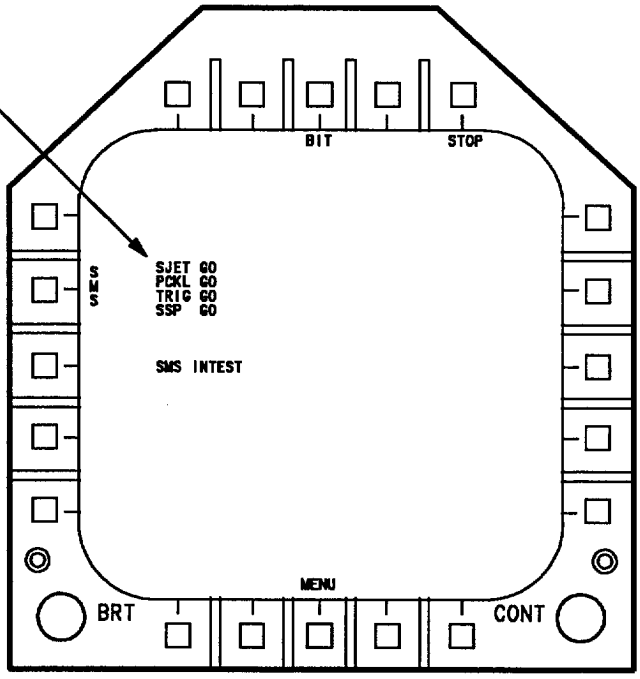


Figure 1. Built-In Test Displays (Sheet 1)



MAINTENANCE BIT CONTROL DISPLAY

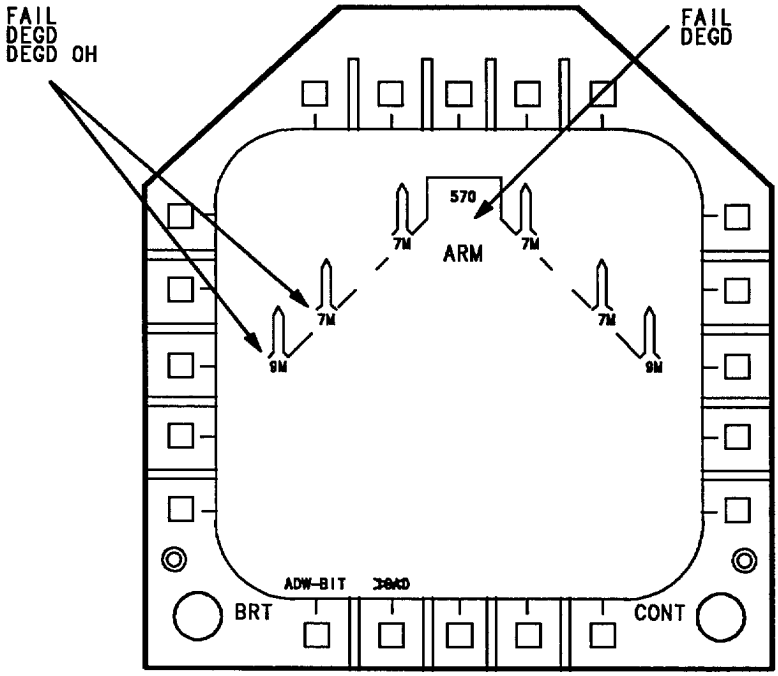
SWITCH DISPLAYS APPEAR AFTER INTIATED BIT IS COMPLETED
GO APPEARS AFTER ALL FUNCTIONS ON THE SWITCH ARE COMPLETED



SMS MAINTENANCE BIT SELECTED

03700102

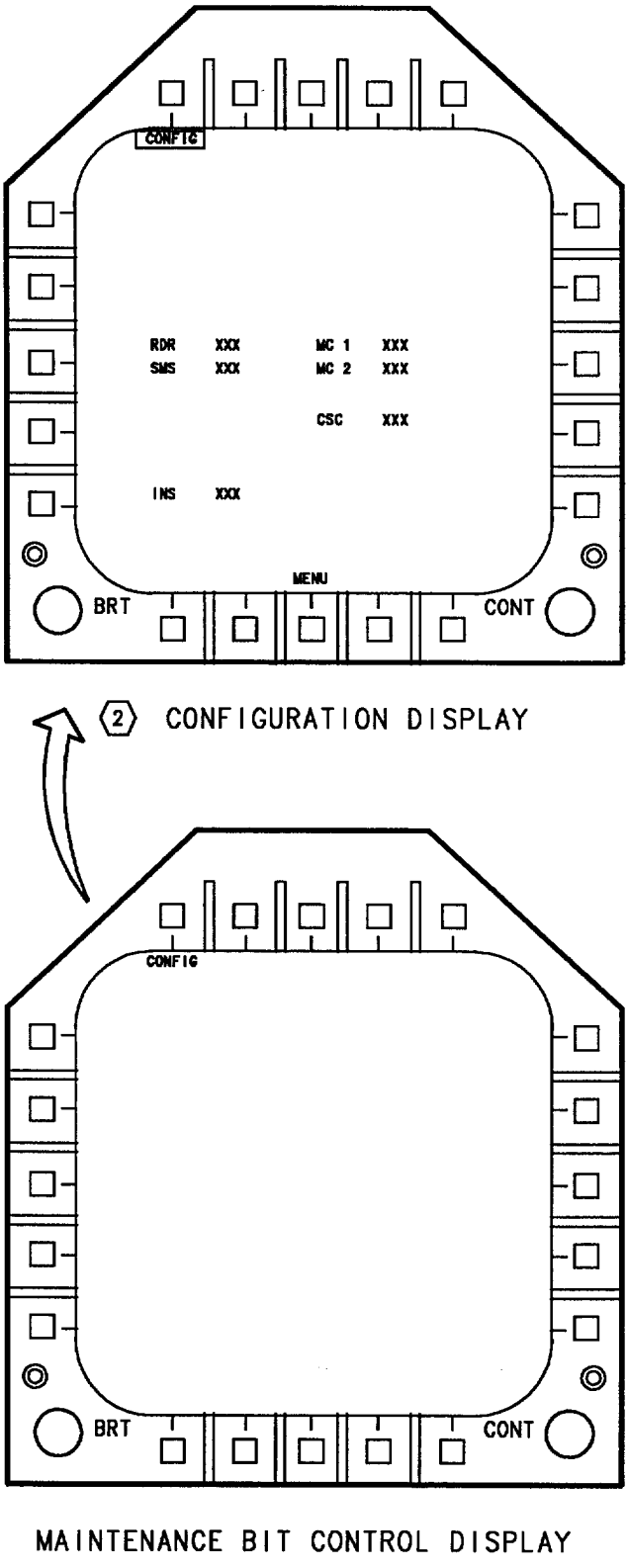
Figure 1. Built-In Test Displays (Sheet 2)



STORE DISPLAY (TYPICAL)

03700103

Figure 1. Built-In Test Displays (Sheet 3)



03700104

Figure 1. Built-In Test Displays (Sheet 4)

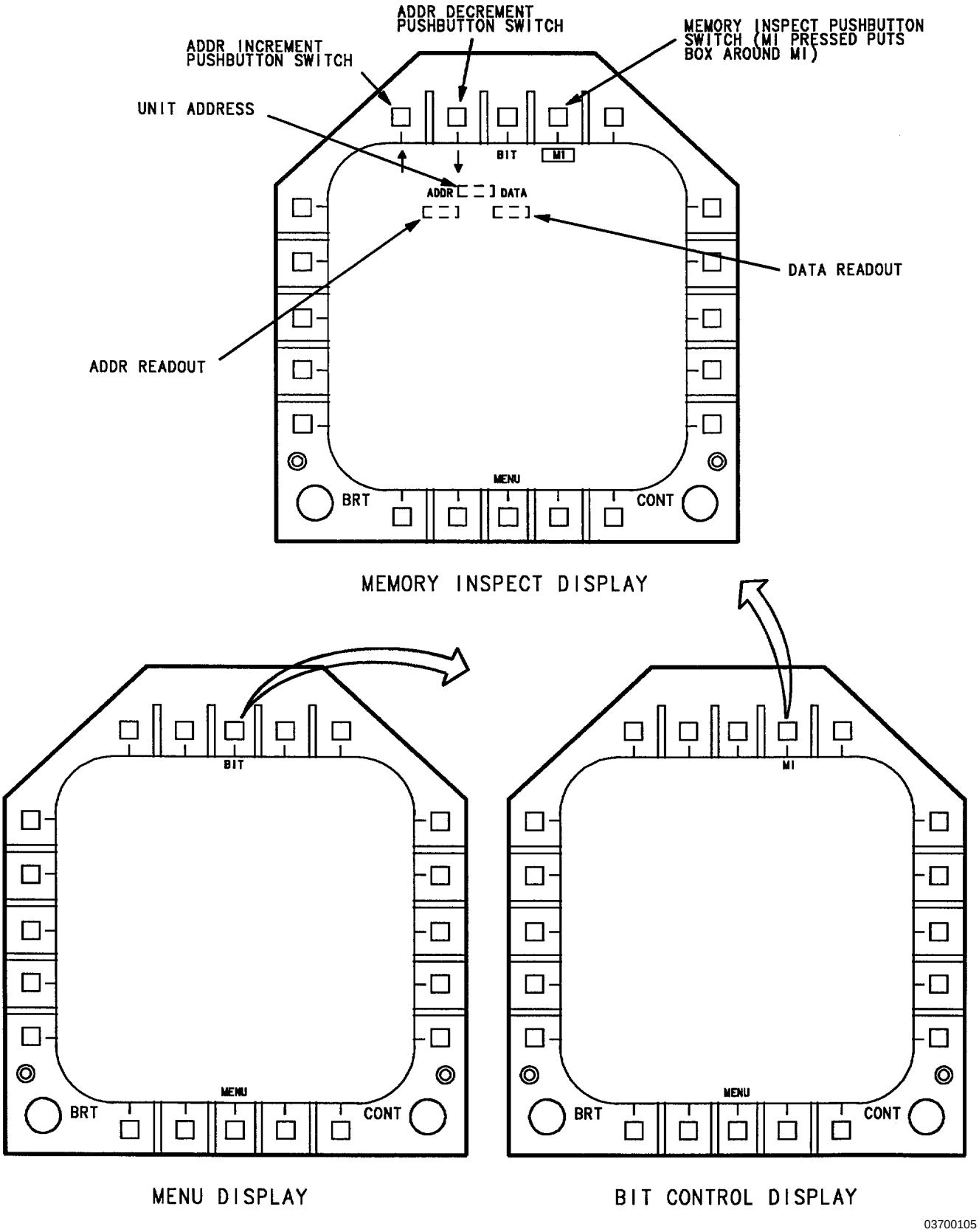
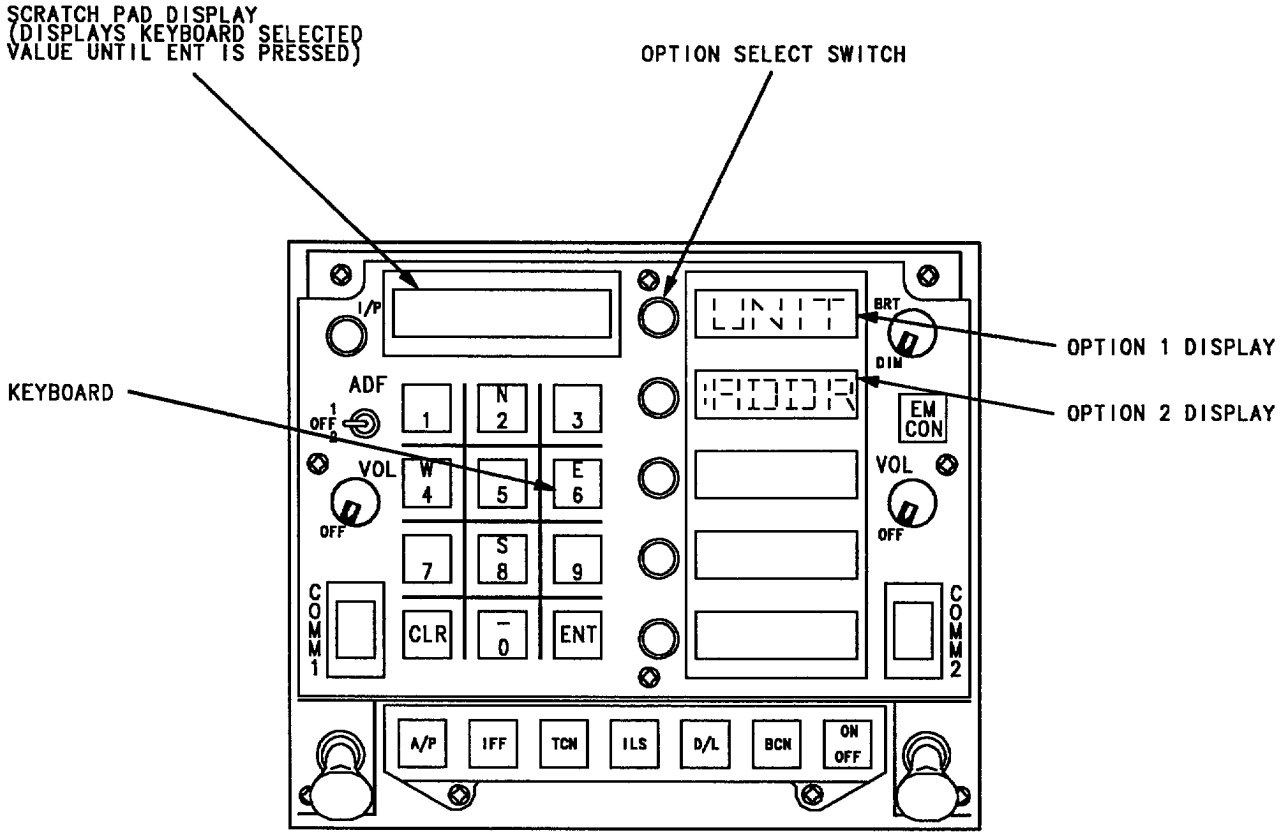


Figure 1. Built-In Test Displays (Sheet 5)



ELECTRONIC EQUIPMENT CONTROL (UFC) C-10380/ASQ

LEGEND

1. ABBREVIATIONS: SEE WP002 01

(2) THE PROGRAM LOAD IDENTIFICATION NUMBER LOCATIONS ARE SHOWN AS XXX OR XXXX.

03700106

Figure 1. Built-In Test Displays (Sheet 6)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - BUILT-IN TEST

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

Locator - Stores Management System WP014 00
Armament Mux Bus Data WP016 00
Built-In Test Simplified Schematic WP038 00
Built-In Test Tables WP039 00
Weapon Control Systems A1-F18AC-740-500
Built-In Test Schematic WP023 00
Built-In Test Avionic Interface Schematic WP024 00

Alphabetical Index

Subject	Page No.
Armament Computer Tests	5
AWW4 Status, Table 3	9
BIT Modes	4
Built-In Test Displays, Figure 1	13
Built-In Test Operation	2
CLC Status, Table 4	9
Command Signal Encoder-Decoder Tests	6
Displays	2
Introduction	2
SMS BIT Interface	2
SMS Status, Table 2	8
Stores Station Status, Table 6	10
STORES Status Message, Table 1	8
System Maintenance codes, Table 7	10
Special Tests	6
WPNS Status, Table 5	10

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) built-in test (BIT) operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP038 01 for the simplified built-in test schematic. The components tested and the avionic interface with the mission computer (MC) system is shown in the schematic. The command signal encoder-decoder shown is typical for all nine encoder-decoders. Detailed BIT operation is shown in Al-F18AC-740-500, WP023 00, Built-In Test Schematic and WP024 00, Built-In Test Avionic Interface Schematic.

4. Figure 1 shows displays related to built-in test operation.

5. Refer to WP014 00 for component locations.

6. BUILT-IN TEST OPERATION.

7. The SMS built-in test function provides automatic and initiated testing of the operational status for the system components.

8. The Armament Computer CP-1342/AYQ-9(V) and Command Launch Computer CP-1001( )/AWG use BIT data internally for weapon computations. Fail information is also sent to the MC system. The MC system stores the fail data and provides the interface control with the multipurpose display group and maintenance status display and recording system for display.

9. The BIT operation in this work package is provided as listed:

a. SMS BIT interface

b. displays

c. BIT modes

d. armament computer tests

e. command signal encoder-decoder tests

f. special tests

10. **SMS BIT INTERFACE.** The armament computer and command launch computer interface with the MC system with equipment ready discretes and on avionic mux bus. BIT select and status data is transmitted to/from the SMS and MC system on avionic mux bus. The equipment ready signal is sent to the MC system to aid in determining the status of the armament computer operating status.

11. The MC system uses avionic mux bus to send displays for BIT to the left Digital Display Indicator (DDI) and Signal Data Computer CP-1726/ASQ-194. The MC system uses avionic mux bus when BIT displays are selected on the right DDI.

12. The armament mux bus transmits the to/from BIT data between the armament computer and nine command signal encoder-decoders. Discrete signals are also used to turn on the encoder-decoders, command launch computer, and Electrical Fuzing Power Supply PP-6419/AWW-4(V) during BIT.

13. **DISPLAYS.** The avionic systems are grouped into categories on the BIT control display. STORES category systems include the Stores Management System (SMS), Electrical Fuzing Power Supply PP-6419/AWW-4(V) (AWW4), Command Launch Computer CP-1001( )/AWG (CLC) and Weapons (WPNS). STORES category systems BIT status data is shown on the left/right DDI and Aircraft Maintenance Indicator ID-2388/ASQ-194 (nose wheelwell DDI). Figure 1 shows the BIT displays listed below:

a. BIT control display

b. STORES BIT display

c. station BIT display

d. SMS maintenance BIT display

e. software configuration display

f. memory inspect option

g. stores display

h. ADV BIT

i. system maintenance code

14. **BIT Control Display**. This display is selected from the support menu display when the BIT pushbutton switch is pressed. STORES category systems status is displayed as well as other aircraft avionic systems status. The STORES status messages that can be displayed are provided in table 1 with a description of the status display.

15. Initiated BIT for STORES category systems as well as all avionic systems can be commanded from the BIT control display. All avionic systems (including STORES category systems) are commanded into initiated BIT with the AUTO pushbutton switch.

16. Pressing the SELBIT pushbutton switch on the BIT control display boxes and unboxes the caption. When SELBIT is boxed, avionic categories of systems can be individually commanded into BIT by pressing the system category pushbutton switch. Pressing the STORES pushbutton switch starts initiated BIT on the Stores Management System, Command Launch Computer, Electrical Fuzing Power Supply and weapons that are capable of BIT.

17. When SELBIT is not boxed, pressing the STORES pushbutton switch selects the STORES BIT display. From this display, the systems statuses are individually displayed and the STORES category systems can all be commanded into initiated BIT or individually commanded into initiated BIT. Pressing the ALL pushbutton switch starts initiated BIT on the Stores Management System, Command Launch Computer, Electrical Fuzing Power Supply and weapons that are capable of BIT. Pressing either the SMS, AWW4 or CLC pushbutton switch starts initiated BIT on the Stores Management System, Electrical Fuzing Power Supply or Command Launch Computer and high-speed anti-radiation missiles (HARM). The STORES display status messages that can be displayed for the systems are provided in tables 2 through 5 with a description of the status display. SMS is not displayed when aircraft has weight off wheels. With weight off wheels, CLC is displayed to enable command launch computer and HARM initiated BIT inflight.

18. The STATION BIT display is selected from the STORES BIT display by pressing the STATION pushbutton switch. The STATION BIT display shows individual station and weapon status. Weapons that have BIT capability are listed and can be commanded into self test by pressing the pushbutton switch next to the weapon acronym. The station status messages that can be displayed are provided in table 6 with a description of the status display.

19. AWW-4 status is set not ready (NOT RDY) during SMS initial (power on) BIT. AWW-4 status is set IN TEST during SMS and AWW-4 initiated BIT. AWW-4 status displayed as GO or DEGD (degraded) at completion of initiated BIT.

20. WPNS status is set NOT RDY when SMS or CLC status is MUX FAIL or NOT RDY. WPNS status is also set NOT RDY if no smart weapons are loaded on the aircraft. WPNS status is the same as CLC status during initiated BIT. When initiated BIT is complete WPNS status is displayed at the WPNS status location.

21. The STOP pushbutton switch option is available from the BIT and all BIT sublevel displays. Pressing the STOP pushbutton causes any BIT operation to stop.

22. **SMS Maintenance BIT Display.** This display is selected by pressing the SMS MAINT pushbutton switch from the STORES BIT display. When the SMS MAINT pushbutton switch is pressed, the SMS initiated BIT is started. At the end of the initiated BIT, the STORES BIT display is replaced by the SMS maintenance BIT display and the switch test options SJET, PCKL, TRIG, and SSP are displayed. The display enables testing of selective jettison switch (SJET), A/G weapon release switch (pickle switch, PCKL), gun/A/A missile trigger switch (TRIG) and jettison station select switches (stores status panel, SSP). The switch test GO status is displayed after the switch acronym during the maintenance BIT switch test.

23. **Configuration Display.** The software configuration display is selected by pressing CONFIG pushbutton switch from the BIT control display. When the pushbutton switch is pressed, the configuration display appears with configuration identification numbers displayed to the right of the programmable components.

24. CONFIG/IDENT numbers are displayed on the software configuration display and can be any number reported by the programmable component. These numbers correspond to the version of computer operational flight program (OFP) loaded and are reported to the mission computer system at system power up. The Software Configuration Manual (A1-F18AC-SCM-000) lists the compatibility of OFP versus aircraft configuration. A software configuration caution will be triggered if the software version of any component is not compatible with the mission computer system.

25. **Stores Display.** The stores display is selected by pressing the STORES pushbutton switch on the tactical MENU display or selecting A/A or A/G aircraft master mode. If an A/G weapon with video/display was selected last, the stores display is replaced by that A/G weapon video/display. When a store is loaded on a weapon station, the station status is displayed below the weapon(s) on the wingform. Table 6 lists the available station status messages that are displayed.

26. BIT status of FAIL or DEGD are displayed for gun. Nothing is displayed if the gun system status is off or go.

27. **ADV BIT.** The ADV BIT is displayed when the MC system receives a BIT fail from any of the

aircraft avionic systems. If not previously displayed, a fail status from the SMS will cause ADV BIT to be displayed on the LDDI.

28. **System Maintenance Codes.** When the MC system receives a fail indication from the SMS, the data is sent to the signal data computer. The computer sends the data to the nose wheelwell DDI for system maintenance code displays. The SMS system maintenance codes that can be displayed are shown in table 7. Table 7 lists the codes that can be displayed and the component/function failure.

29. **BIT MODES.** The SMS BIT modes are listed below:

a. initial (power up) BIT

b. periodic BIT

c. initiated BIT

d. maintenance BIT

e. CLC/WPN BIT

30. **Initial (Power Up) BIT.** The initial BIT is started when power is applied to the armament computer. Initial BIT tests the system components and is used to establish the stores inventory and system initialization functions.

31. During power up BIT, the armament computer does an internal self-test. If the armament computer fails self-test, the function status word is set to fail and the equipment ready discrete to the MC system is enabled. If the self-test is good, the armament computer tests the command signal encoder-decoders installed on the aircraft.

32. During the encoder-decoder tests, the stores inventory is done to test the weapon idents. If a decoder circuit fails for a weapon ident not loaded on that station, the station is considered degraded but operable. If a decoder circuit fails a test for a weapon ident loaded on that station, the station is considered inoperable. If the detected failure later disappears, the station is returned to an operable status.

33. After the first 20 seconds of power up BIT the armament computer sends the equipment ready discrete to the MC system. When this discrete is received, the MC system tries to establish communication with the armament computer to satisfy the requirements for the terminal test word. The terminal test word verifies communication can be established on avionic mux channel 1 between the armament computer and the MC system. The armament computer accepts and responds to the terminal test word. However, not until after the first 240 seconds when power up BIT ends will the armament computer process commands or send the initialization BIT data to the MC system.

33A. RESTRT BIT. If initiated (power up) BIT is started and the SMS-BIT timer (240 seconds limit) has expired before Initiated BIT test is completed and no BIT DEGD or SMS failure is displayed Initiated BIT can be restarted.

34. **Periodic BIT.** Periodic BIT is the primary BIT mode of the SMS. This test is automatically done every 60 seconds when aircraft master mode is NAV. During this test, the armament computer and encoder-decoders for stations loaded with weapons are tested.

35. Selecting the A/A or A/G aircraft master mode will also start the periodic BIT. When A/A is selected, all stations with A/A weapons are tested for the type of weapon selected. When A/G is selected, all A/G stations with the selected weapon type are tested.

36. Periodic BIT is also done when the all gear up and locked signal from the landing gear system changes state. This is done to establish the degrade assessment function of BIT. Degrade assessment evaluates the ability of the system to deliver the weapon load on the aircraft.

37. Program change is sent to the armament computer from the MC system when a bomb program is being selected or changed. When the periodic BIT on the armament computer and encoder-decoders is interrupted, weapon processing begins within 50 milliseconds.

38. Periodic BIT is interrupted and normal operating mode resumed when the system functions listed below are set:

a. MASTER switch set to ARM and trigger detent no. 2 discrete is true or weapon release discrete is true, or

b. selective jettison discrete is true, or

c. program change bit from avionic bus is true

39. **Initiated BIT.** Initiated BIT is done as selected from one of the BIT sublevel displays. With weight on wheels, the SMS, CLC and AWW4 initiated BIT options are available. With weight off wheels, CLC is available to enable testing the command launch computer and HARM weapons inflight. SMS BIT option is not available inflight. The CLC pushbutton option is not displayed when the CLC is not installed. It is also not displayed and the CLC cannot be powered up if a HARM weapon is not loaded.

40. Commanding an initiated BIT by pressing a pushbutton switch causes the MC system to send the initiated BIT command to the armament computer. The armament computer does the same BIT functions as the power up BIT. Also, the initiated BIT has the ability to test the electrical fuzing power supply, command launch computer, and high current drivers in the encoder-decoders. Further BIT tests are done when a HARM ident exists on a weapon station.

41. Testing of weapon release (fire signal) circuits for the weapons is done by high current driver tests. The high current drivers are tested when the system functions listed below are set:

a. MASTER switch set to ARM

b. ARMAMENT OVERRIDE switch set to OVERRIDE

c. No weapon idents exist on the weapon stations

d. Weapon insertion panel switches on the armament computer are all set to zero

42. HARM weapons are tested when the CLC is commanded into BIT. They are also tested when the HARM pushbutton option is selected on the station BIT display.

43. The electrical fuzing power supply is tested during initiated BIT. High voltage test (ground enable) and 28vdc AWW-4 enable from the armament computer turn on the power supply. The high voltage test is sent to the armament computer where it is monitored for a go condition. The power supply can also be commanded into BIT from the STORES BIT display by pressing the AWW-4 pushbutton switch.

44. **Maintenance BIT.** This BIT is done when the SMS MAINT pushbutton switch is pressed on the STORES BIT display. Pressing SMS MAINT starts the SMS initiated BIT.

45. When the SMS initiated BIT is complete, the switch test (acronym) options are displayed on the display. The switches tested are listed below:

Acronym	Switch
SJET	SELECT JETT switch
PCKL	A/G weapon release switch
TRIG	Gun/A/A missile trigger switch
SSP	JETT STATION SELECT switches
ATRG	Aft cockpit right hand controller trigger switch

46. To test the switches, all functions of the switch are activated. When the armament computer receives all of the discrete switch activate signals for the switch under test, a GO is displayed on the DDI next to the switch acronym.

47. **CLC/WPNS BIT.** When HARM weapons are loaded on the aircraft, initiated BIT can be done on the weapons. The weapon BIT can be done on the ground or inflight using the STORES pushbutton switch on the BIT control display, the CLC pushbutton switch on the STORES BIT display or the HARM pushbutton switch on the station BIT display.

48. When the test is commanded, the command launch computer is turned on by the armament computer. The armament computer turns on the 3Ø power control to the HARM stations. HARM stations are tested sequentially. The armament computer also selects the HARM switching relays.

49. The command launch computer does an internal BIT. During this test, interface signals with the armament computer and Countermeasures Computer CP-1293/ALR-67(V) are tested. The BIT status messages are sent to the MC system for BIT status displays and set maintenance codes for the nose wheelwell DDI.

50. During WPN BIT, the command launch computer sends test signals to the weapon and monitors the weapon to determine the missile status. These signal results are interpreted as missile fail or video degraded. The status of the station being tested is displayed by WPNS on the BIT control display, by WPNS on the STORES BIT display and by the weapon station on the station BIT display. Maintenance codes are also set on the nose wheelwell DDI.

51. **ARMAMENT COMPUTER TESTS.** The BITs of the armament computer are listed below:

a. internal memory/timing

b. ARMAMENT/FUZING weapon insertion panel test

c. discrete input monitor test

d. discrete output monitor test

e. relay switching function

f. weapon circuit tests

g. equipment ready/terminal test

52. **Internal Memory/Timing Tests.** The internal memory/timing tests are used to verify the ability of the armament computer to do BIT and weapon functions. This BIT tests the interval timer, interrupt controller, write protection, memory parity, PROM, and software (program) checksum.

53. **Armament/Fuzing Weapon Insertion Panel Test.** Initial BIT tests the switch setting of the ARMAMENT and FUZING switches for each of the pylon stations and wingtip stations. The statusof the switch settings are stored in memory. The switch settings are used to determine station status/ load malfunctions during the weapon inventory power on BIT function.

54. **Discrete Input Monitor Test.** The discrete inputs to the armament computer are tested to determine the input state. The armament computer requires this information when determining the BIT tests that can be safely run.

55. The switches that could cause a weapon release are tested to make sure they are in the off state. These switches are listed below:

a. A/G weapon release

b. gun/A/A missile trigger

c. SELECT JETT pushbutton

d. EMERG JETT pushbutton

56. If the monitor determines that one of the switches is on, the fail status is sent to the MC system. The MC system will enable the system maintenance code to be sent to the nose wheelwell DDI for display.

57. **Discrete Output Monitor Tests.** The armament computer commands the discrete output devices to off and then tests the outputs. The on state of an output circuit is a BIT fault of the armament computer.

58. **Relay Switching Function.** The HARM, video, and audio switching relays are commanded to off during initial BIT. The relays are then tested for the off state. A relay switch failure is an armament computer BIT fail.

59. **Weapon Circuits Tests.** During BIT, the circuits are tested that are required to process weapon prelaunch data. Weapon/store signals from the MC system are modified and converted to the armament mux bus format and sent to the weapon station encoder-decoders. These circuits are used/ tested when the encoder-decoders functional tests are run. The tables in WP044 00 lists the weapon related signals tested during BIT.

60. **Equipment Ready/Terminal Test.** The armament computer sets the equipment ready discrete after the first 20 seconds of initial (power on) BIT is complete or when initial BIT detects an armament computer fail. When equipment ready is sent to the MC system, the MC system sends the terminal test word to the armament computer; however, the armament computer does not respond to the MC system commands until the power on BIT is complete.

61. After power on BIT is complete, the armament computer receives and returns the test word to the MC system. If the MC does not receive the return word, the message is sent over the remaining redundant avionic mux channel 1 wire pair. If the armament computer does not return the message, the MC sets the armament computer fail system maintenance code and displays SMS MUX FAIL. The MC also displays the ADV-BIT advisory. If the armament computer responds to the second try, the MC system sets the armament computer (single) terminal fail system maintenance code.

62. **COMMAND SIGNAL ENCODER-DECODER-TESTS.** The tests run on the weapon encoder-decoders are controlled by the armament computer by way of the armament mux bus. Armament mux bus data in WP016 00 lists the signals used to send BIT data to/from the encoder/decoders.

63. Each encoder-decoder has an overheat BIT monitor. Overheat status is sent to the armament computer and is then sent to the MC system. The overheat (fail) does not set the SMS maintenance code however; the overheat is displayed for the SMS BIT status display. The overheat is stored inthe MC system.

64. The armament computer sends the BIT commands to the encoder-decoders and monitors the test results. When a fail is detected, the fail or degrade status is sent to the MC system for display on the DDI BIT displays and nose wheelwell DDI.

65. **SPECIAL TESTS.** Special tests for the SMS are defined as listed below:

a. memory load/verify

b. memory inspect

c. AIM-7/AIM-9 end to end testing

66. **Memory Load/Verify.** The program for the armament computer may be loaded and tested on the aircraft through use of the Computer Memory Loader/Verifier (MLV) AN/ASM-607(V)5. The MLV is capable of loading and verifying memory, and controlling operation of the on aircraft programmable components. The MLV hooks up to the multiplex test connector, located in the nose wheel-well, left side. This connector has direct access to avionic mux busses 1, 2, and 3. The MLV contains a magnetic tape memory (MTM) set for storing MLV control programs and computer operational programs.

67. Program Loading Signal Interface Logic. A separate discrete line is furnished from the multiplex test connector to the armament computer to provide an initial program load (IPL) enable discrete logic line. MLV employs this discrete to prepare the computer for a transfer of data over the avionic mux bus. Transfer of memory load/read information and data shall be controlled by unique command words and status words received over the avionic mux bus.

68. During MLV load mode, three command words are provided to initialize the load mode and to transfer data which is to be loaded into the computer. These command words are listed below:

a. header information

b. memory load data

c. trailer information

69. During MLV read mode, two command words are provided to initialize the read mode and to transfer the data to be read from the computer. These command words are listed below:

a. header information

b. data request

70. The MLV provides these system functions when connected to an operational computer.

a. Save on magnetic tape memory (MTM), any program in the computer. MTM will store all necessary MLV control programs and computer programs.

b. Load and verify any computer program stored on the MTM.

c. Read any computer program for verification

71. Armament Computer Programming Operations. Load/read functions of the MLV are applicable to the armament computer programming operations. When the MLV is being used to load/read the armament computer program, data is transferred over avionic mux channel 1. Configuration display as described in this WP, presents the program load identification number for the armament computer program loaded.

72. **Memory Inspect.** Memory inspect is an initiated test which accesses computer memory locations for display and interpretation. It is used as a troubleshooting aid to determine signal accuracy to and from Digital Data Computers No. 1 and No. 2. These signals are listed as mnemonics in system schematics manual (Weapon Control System, A1-F18AC-740-500).

73. Memory inspect feature is provided to allow the operator to inspect the memory contents of selected computers. This is done through use of the Electronic Equipment Control and DDI's. Memory inspect option can be selected from any of the BIT control panel displays by selection of the MI button. When MI is selected, ADDR and DATA appear on the display and up-arrow (increment), and down-arrow (decrement) options are made available as shown in figure 1, in addition to what is already on the display.

74. The equipment control is also enabled to the memory inspect mode and the operator must enter a unit code for the desired computer and memory address from which data is desired. Up-arrow and down-arrow buttons on the memory inspect display, allow the operator to increment up or down from the entered address without need for re-entry.

75. **AIM-7/AIM-9 End to End Testing.** With AIM-7 End To End Tester 74D750050-1001 installed on station to be tested, the AIM-7 end to end test may be done at the end of maintenance bit by pressing cage/uncage switch on right throttle grip. Under TST for station tested, STBY, RDY or FAIL will be displayed. With AIM-9 End to End Tester 74D750051-1001 installed on station to be tested, the AIM-9 end to end test may be done at the end of maintenance bit by pressing cage/uncage switch on right throttle grip, on F/A-18D Trainer Configuration right throttle grip or F/A-18D Night Attack Configuration left and right hand controllers. Under TST for station tested, STBY, RDY or FAIL will be displayed. The weapon insertion panel WINGTIP code must be set to 9 for either end to end test.

Table 1. STORES Status Message

DISPLAY	DESCRIPTION
SF TEST	Power up self test in progress.
IN TEST	System initiated BIT or maintenance BIT in progress.
RESTRT	Restart BIT. System did not respond to BIT command or did not complete BIT in allowed time.
MUX FAIL	System on but not communicating on avionic mux channel 1 with mission computer system.
DEGD +OVRHT	System failure detected and system component overheated.
OVRHT	System component overheated.
DEGD	System failure detected and system operation is degraded.
OP GO	Displayed when stores management system failure has been detected that does not affect the system ability to deliver loaded weapons.
PBIT GO	Initiated BIT has not run since power up and periodic bit is not reporting any failures.
GO	BIT test complete with no failures.
NOT RDY	System not turned on, system cannot be turned on or system not installed.

Table 2. SMS Status

DISPLAY	DESCRIPTION
SF TEST	Armament Computer power up self test in progress.
IN TEST	Armament Computer initiated BIT or maintenance BIT in progress.
RESTRT	Restart BIT. Armament Computer did not respond to BIT command or did not complete BIT in allowed time.
MUX FAIL	Armament Computer on but not communicating on avionic mux channel 1 with mission computer system.
DEGD +OVRHT	Stores Management System failure detected and system component overheated.
OVRHT	Stores Management System component overheated.
DEGD	Stores Management System failure detected and system operation is degraded.
OP GO	Displayed when stores management system failure has been detected that does not affect the system ability to deliver loaded weapons.
PBIT GO	Initiated BIT has not run since power up and periodic bit is not reporting any failures.
GO	BIT test complete with no failures.
NOT RDY	System not turned on, system cannot be turned on or system not installed.

Table 3. AWW4 Status

DISPLAY	DESCRIPTION
IN TEST	Electrical Fuzing Power Supply initiated BIT in progress.
RESTRT	Restart BIT. Electrical Fuzing Power Supply did not respond to BIT command or did not complete BIT in allowed time.
DEGD	Electrical Fuzing Power Supply failure detected and operation is degraded.
GO	BIT test complete with no failures.
NOT RDY	Stores Management System not turned on or not communicating on avionic mux channel 1 with mission computer system.

Table 4. CLC Status

DISPLAY	DESCRIPTION
SF TEST	Power up self test in progress.
IN TEST	System initiated BIT or maintenance BIT in progress.
RESTRT	Restart BIT. System did not respond to BIT command or did not complete BIT in allowed time.
MUX FAIL	System on but not communicating on avionic mux channel 1 with mission computer system.
DEGD +OVRHT	System failure detected and system component overheated.
OVRHT	System component overheated.
DEGD	System failure detected and system operation is degraded.
OP GO	Displayed when stores management system failure has been detected that does not affect the system ability to deliver loaded weapons.
PBIT GO	Initiated BIT has not run since power up and periodic bit is not reporting any failures.
GO	BIT test complete with no failures.
NOT RDY	System not turned on, system cannot be turned on or system not installed.

Table 5. WPNS Status

DISPLAY	DESCRIPTION
IN TEST	Armament Computer a station test is in progress.
RESTRT	CLC status is RESTRT and a HARM weapon is loaded.
DEGD	Weapon fail or weapon degraded being reported by the Armament Computer.
GO	Smart weapons loaded and status of each is go.
NOT RDY	Armament Computer and CLC not communicating on avionic mux channel 1 with mission computer system or if no smart weapons are loaded.
PBIT GO	No other status is applicable.

Table 6. Stores Station Status

DISPLAY	DESCRIPTION
IN TEST	Weapon loaded on that station in initiated BIT or end to end test in progress.
WDEGD	Weapon failure detected and delivery capability is degraded.
NO BIT	BIT has not been run but weapon is not reporting any failures.
GO	BIT test complete with no failures.
NOT RDY	Weapon not turned on, not tuned, gyros not up to speed or TIMING not timed out.
WFAIL	Weapon won't communicate or reports failed.
RALT	Radar altimeter is being used for altitude.

Table 7. System Maintenance Codes

Maintenance Code	1 Failure
006	Armament Computer CP-1342/AYQ-9(V) terminal fail
017	Command Launch Computer CP-1001( )/AWG terminal fail
070	Armament Computer CP-1342/AYQ-9(V) fail
071	Left Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) fail
072	Left Wing Outboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail
073	Left Wing Inboard Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V) fail
074	Left Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V) fail

Table 7. System Maintenance Codes (Continued)

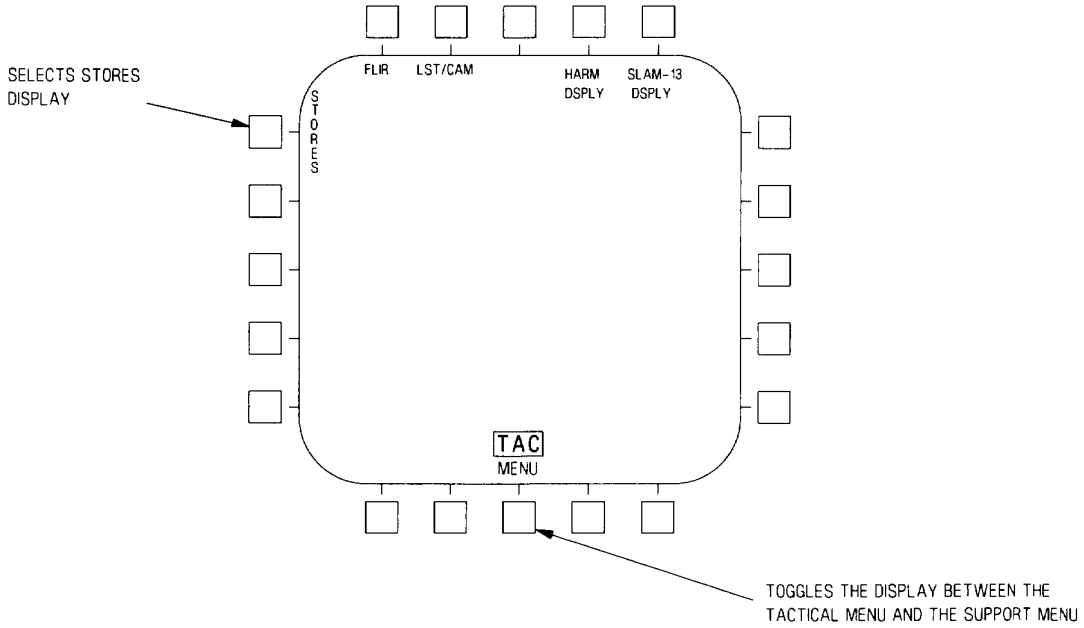
Maintenance Code	1 Failure
076	Right Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V) fail
077	Right Wing Inboard Pylon Command Signal Encoder - Decoder KY-853/AYQ-9(V) fail
078	Right Wing Outboard Pylon Command Signal Encoder- Decoder KY-853/AYQ-9(V) fail
079	Right Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V) fail
080	Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V) fail
081	Electrical Fuzing Power Supply PP-6419/AWW-4(V) fail
082	EMERG JETT Switch fail
083	SELECT JETT Switch fail
084	GUN/A/A Missile Trigger fail
085	A/G Weapon Release Switch fail
375	Command Launch Computer CP-1001( )/AWG fail
376	CLC/SMS Interface fail
377	CLC/ALR-67 Interface fail
378	Station 2 HARM Missile fail
379	Station 3 HARM Missile fail
380	Station 7 HARM Missile fail
381	Station 8 HARM Missile fail
382	Station 2 HARM Missile Interface Degrade
383	Station 3 HARM Missile Interface Degrade
384	Station 7 HARM Missile Interface Degrade
385	Station 8 HARM Missile Interface Degrade
390	Reserved for Weapon Station 1 fail
391	Station 2 left AMRAAM fail
392	Station 2 right AMRAAM fail

Table 7. System Maintenance Codes (Continued)

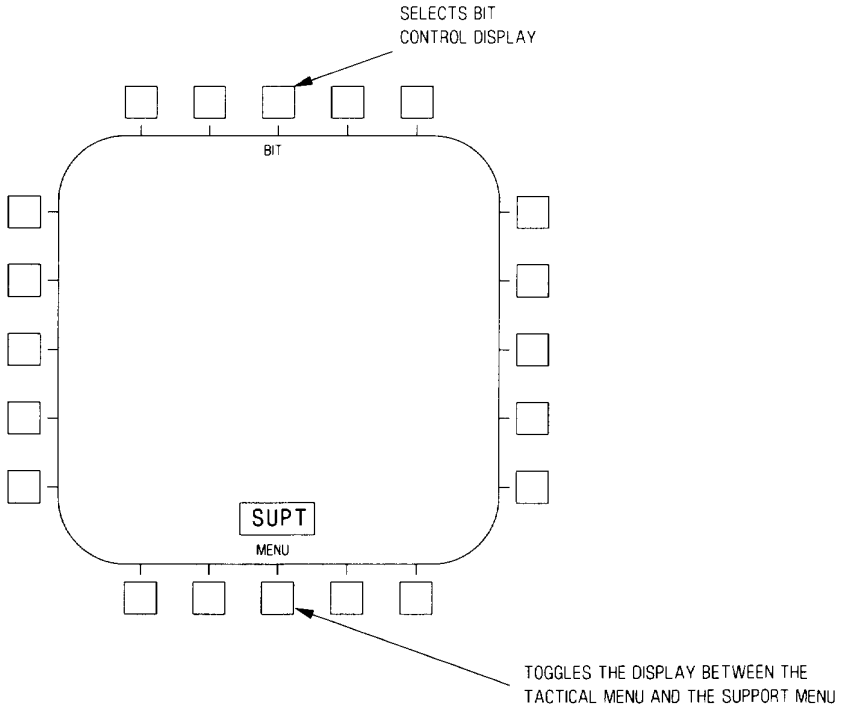
Maintenance Code	[1] Failure
393	Station 3 left AMRAAM fail
394	Station 3 right AMRAAM fail
395	Reserved for Station 4 left fail
396	Station 4 right AMRAAM fail
397	Reserved for Station 5 left fail
398	Reserved for Station 5 right fail
399	Reserved for Station 6 left fail
400	Station 6 right AMRAAM fail
401	Station 7 left AMRAAM fail
402	Station 7 right AMRAAM fail
403	Station 8 left AMRAAM fail
404	Station 8 right AMRAAM fail
405	Weapon Station 9 fail
C04	Armament Computer CP-1342/AYQ(V) Contains Classified Data
C05	Weapons/Stores Contain Classified Data

NOTES

[1] F/A-18A 162394 THRU 163175 AFTER AFC 253 OR AFC 292 READ MMP CODES FROM COCKPIT DDI ONLY.



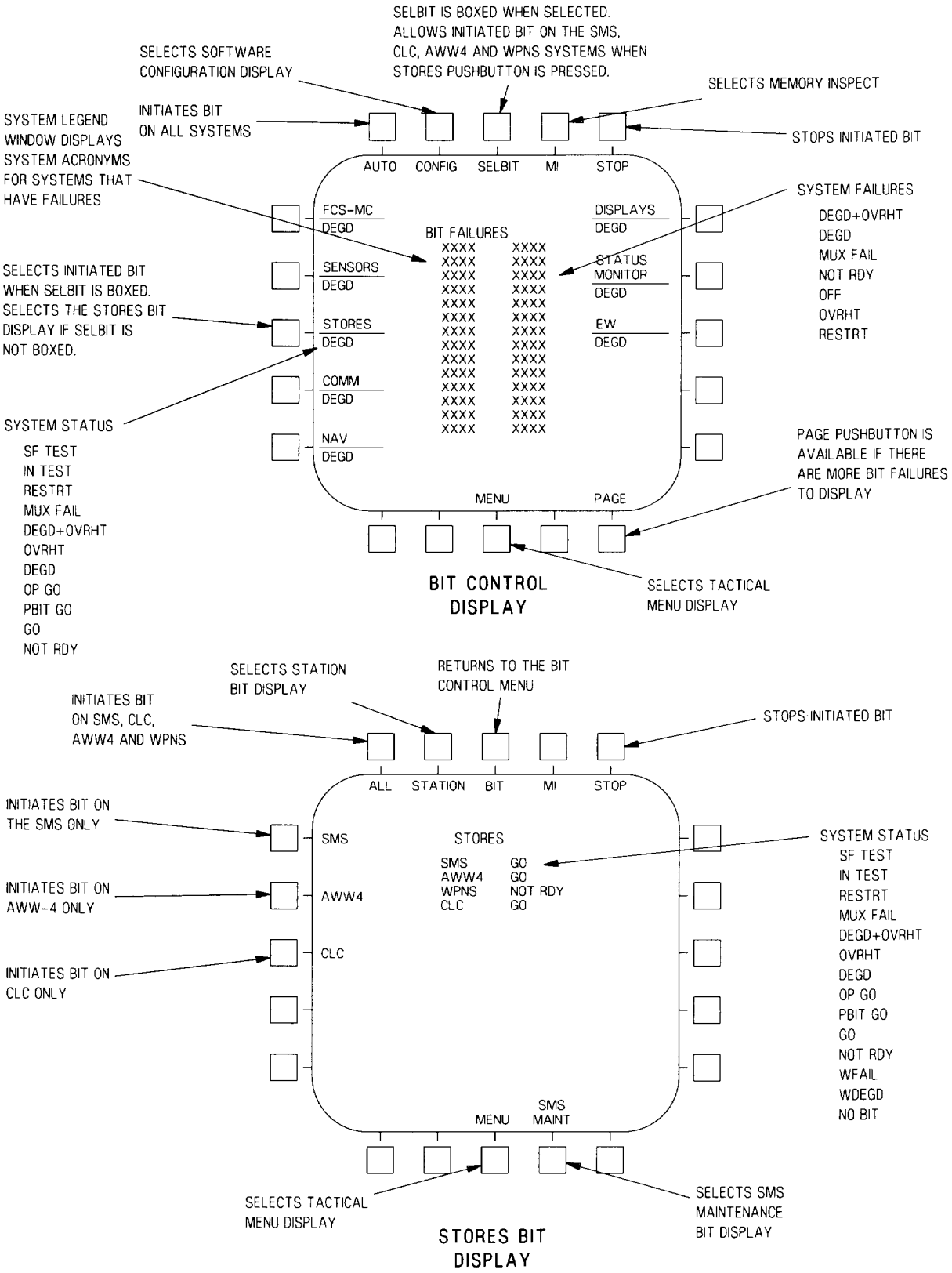
TACTICAL MENU DISPLAY



SUPPORT MENU DISPLAY

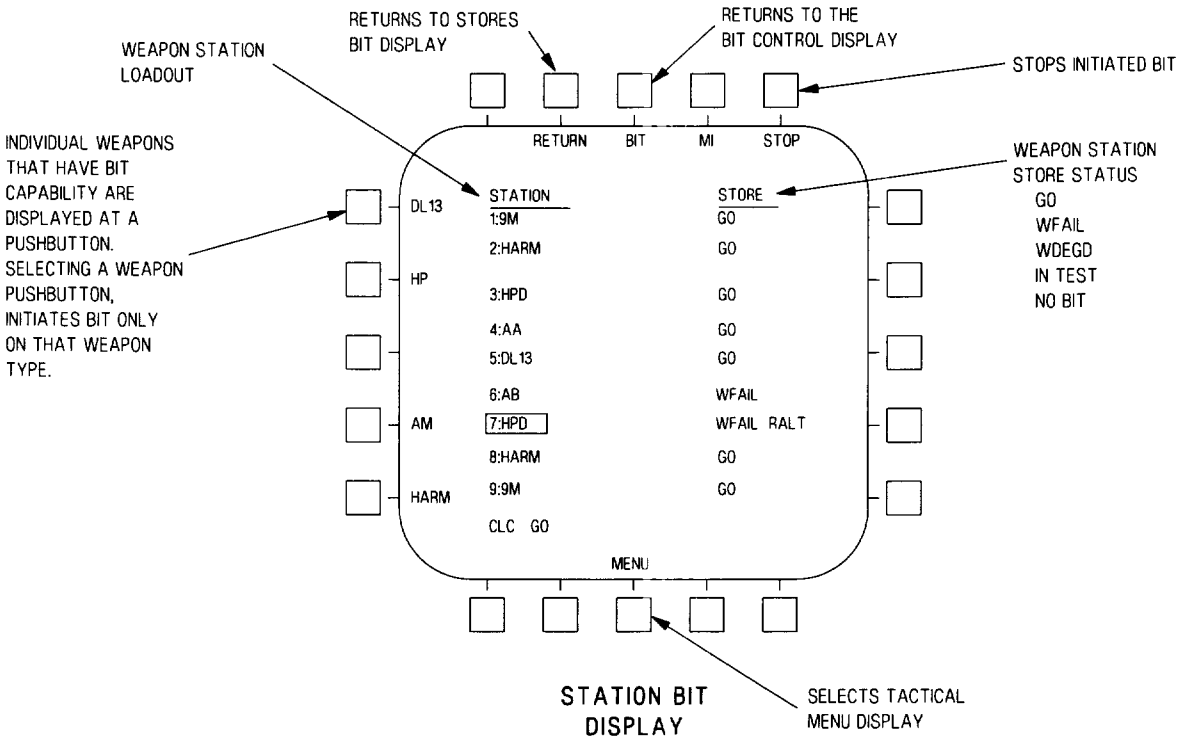
37010101

Figure 1. Built-In Test Displays (Sheet 1)



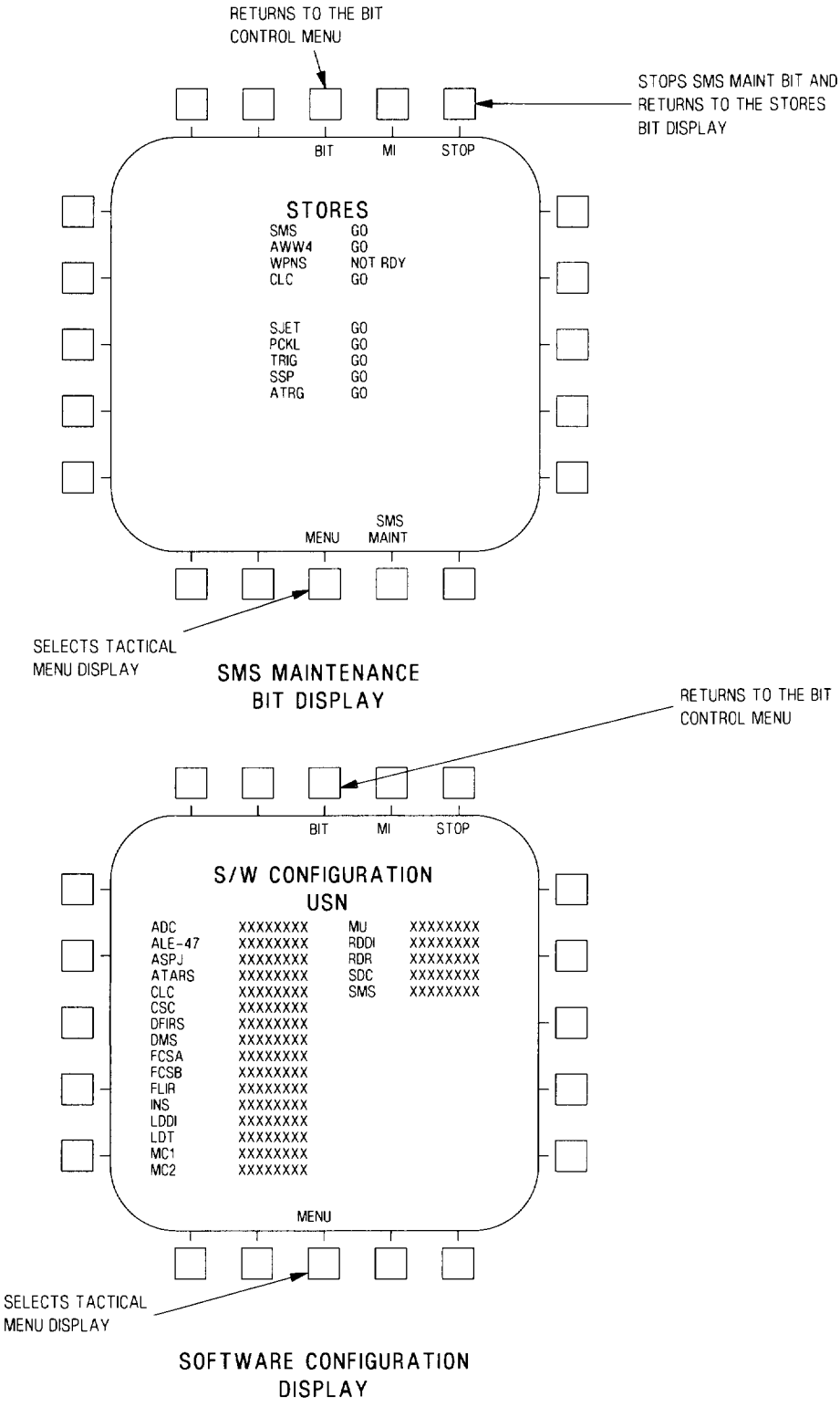
37010102

Figure 1. Built-In Test Displays (Sheet 2)



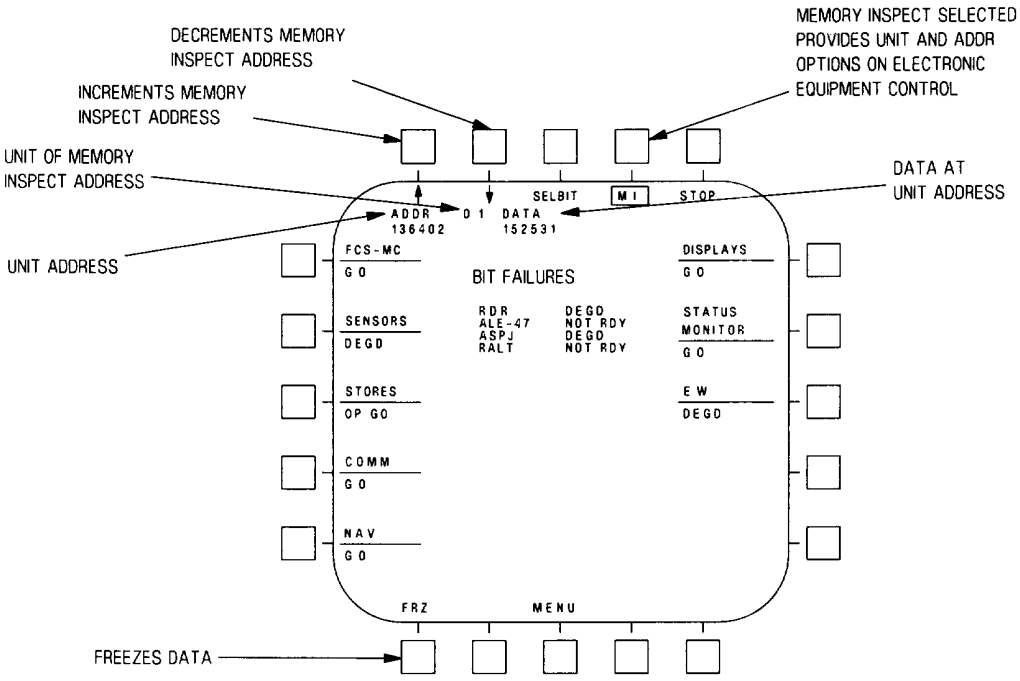
37010103

Figure 1. Built-In Test Displays (Sheet 3)

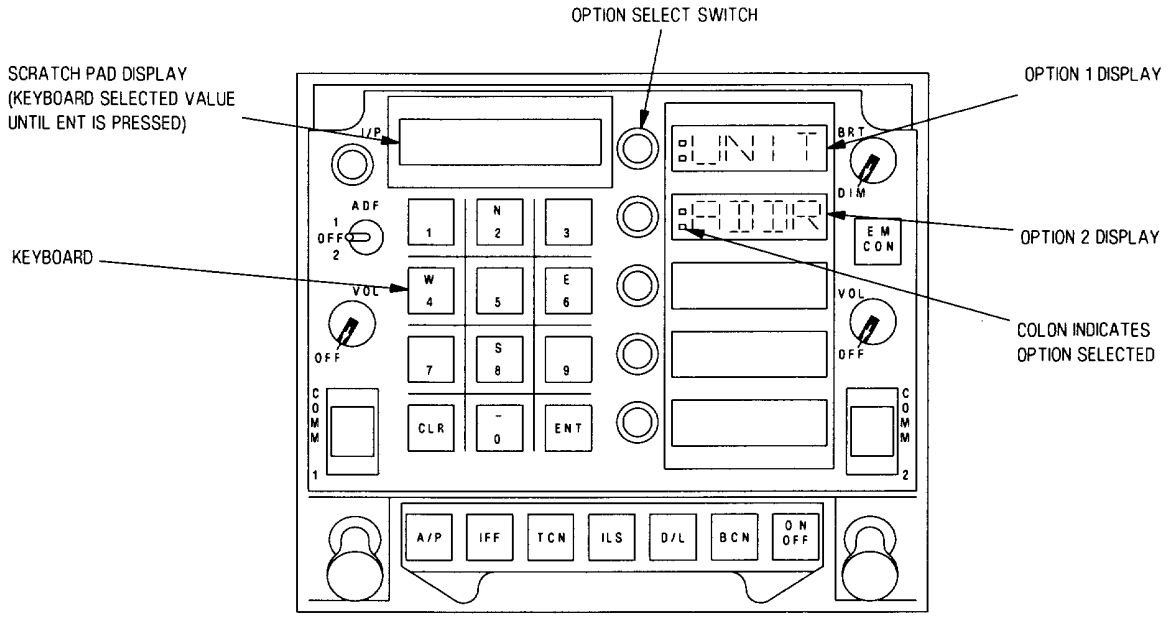


37010104

Figure 1. Built-In Test Displays (Sheet 4)



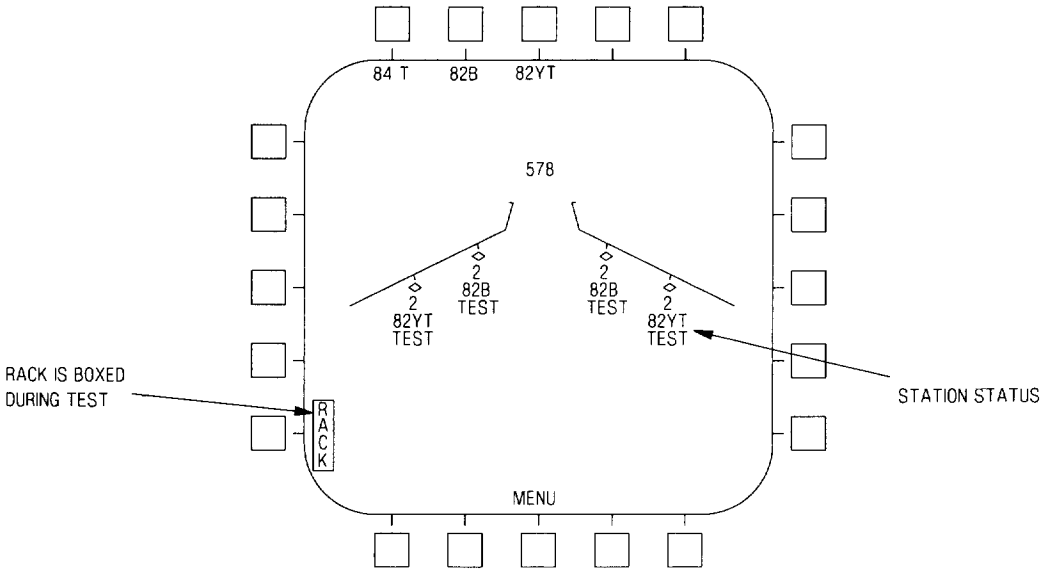
MEMORY INSPECT
OPTION



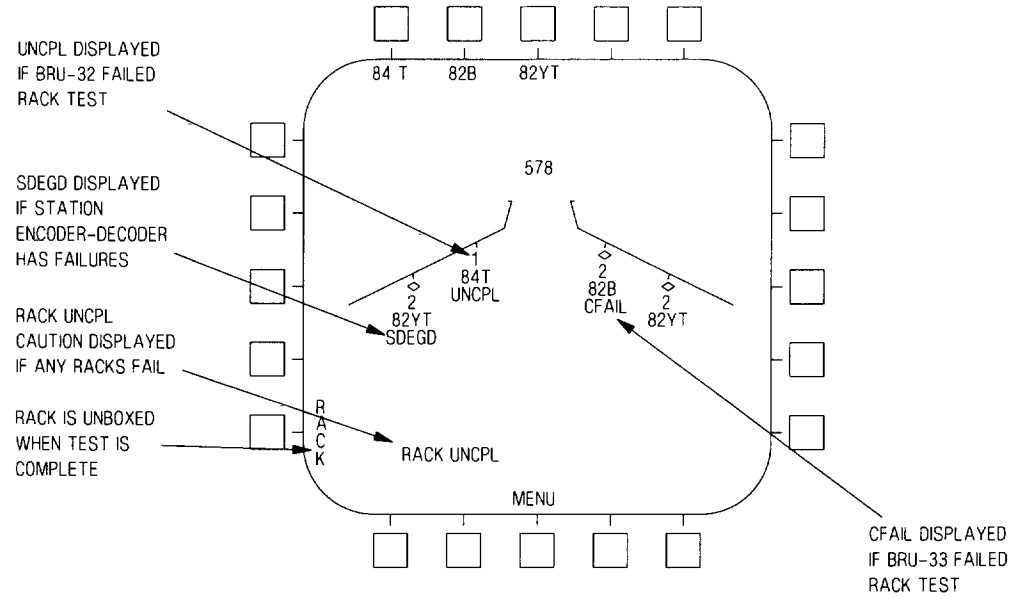
ELECTRONIC EQUIPMENT CONTROL
WITH MEMORY INSPECT SELECTED

37010105

Figure 1. Built-In Test Displays (Sheet 5)



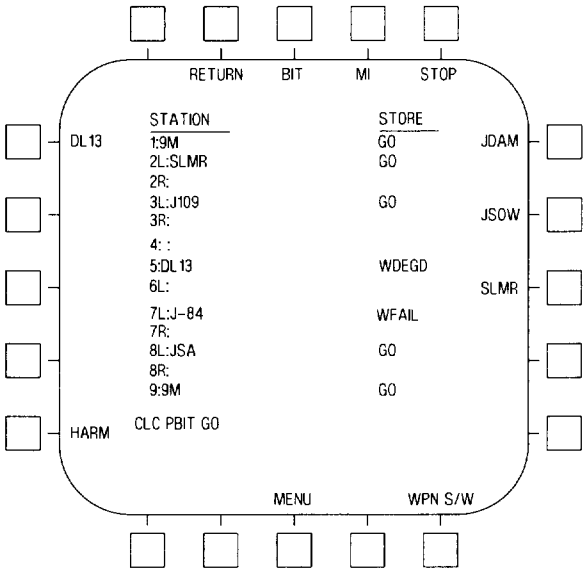
STORES DISPLAY
(RACK TEST IN PROGRESS)



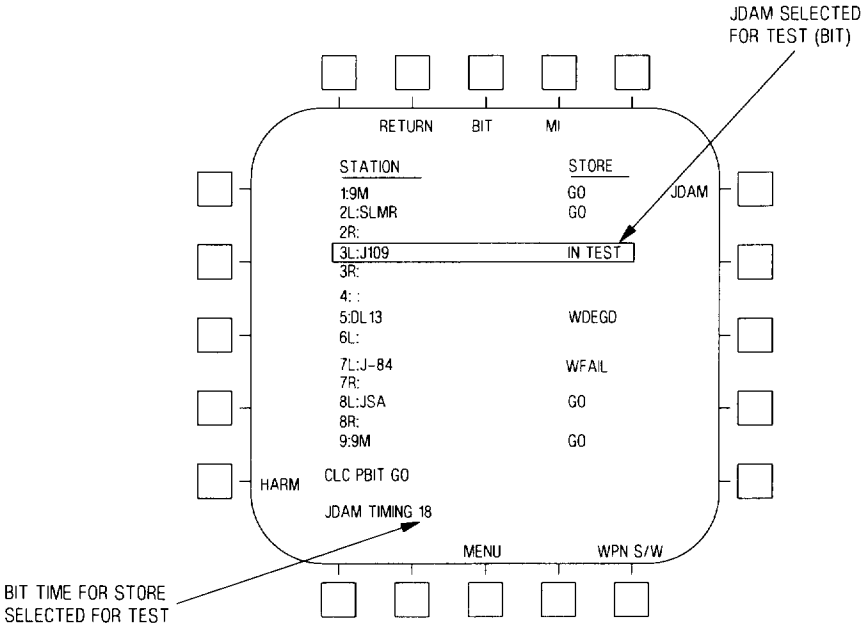
STORES DISPLAY
(RACK TEST COMPLETE)

37010106

Figure 1. Built-In Test Displays (Sheet 6)



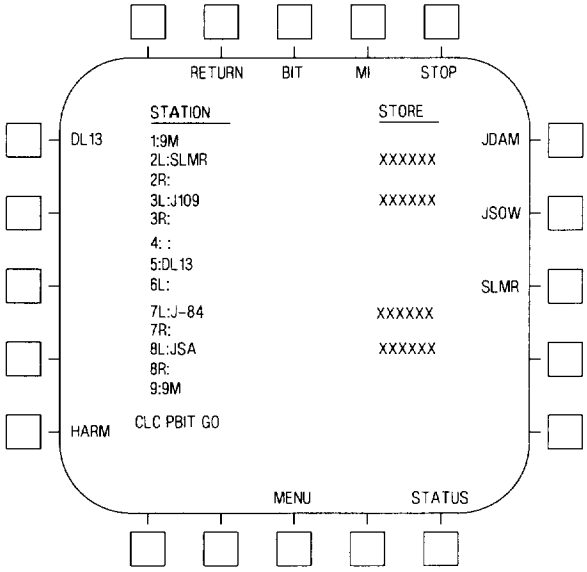
1760 BIT STORES
STATION SUBLEVEL



1760 BIT STORES STATION
SUBLEVEL (JDAM IN TEST)

37010107

Figure 1. Built-In Test Displays (Sheet 7)



1760 STORES STATION
CONFIGURATION IDENT

37010108

Figure 1. Built-In Test Displays (Sheet 8)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - BUILT-IN TEST SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

Subject	Page No.
Built-In Test Simplified Schematic, Figure 1	2
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only

1. INTRODUCTION.

2. This work package provides support for the data in WP037 00.

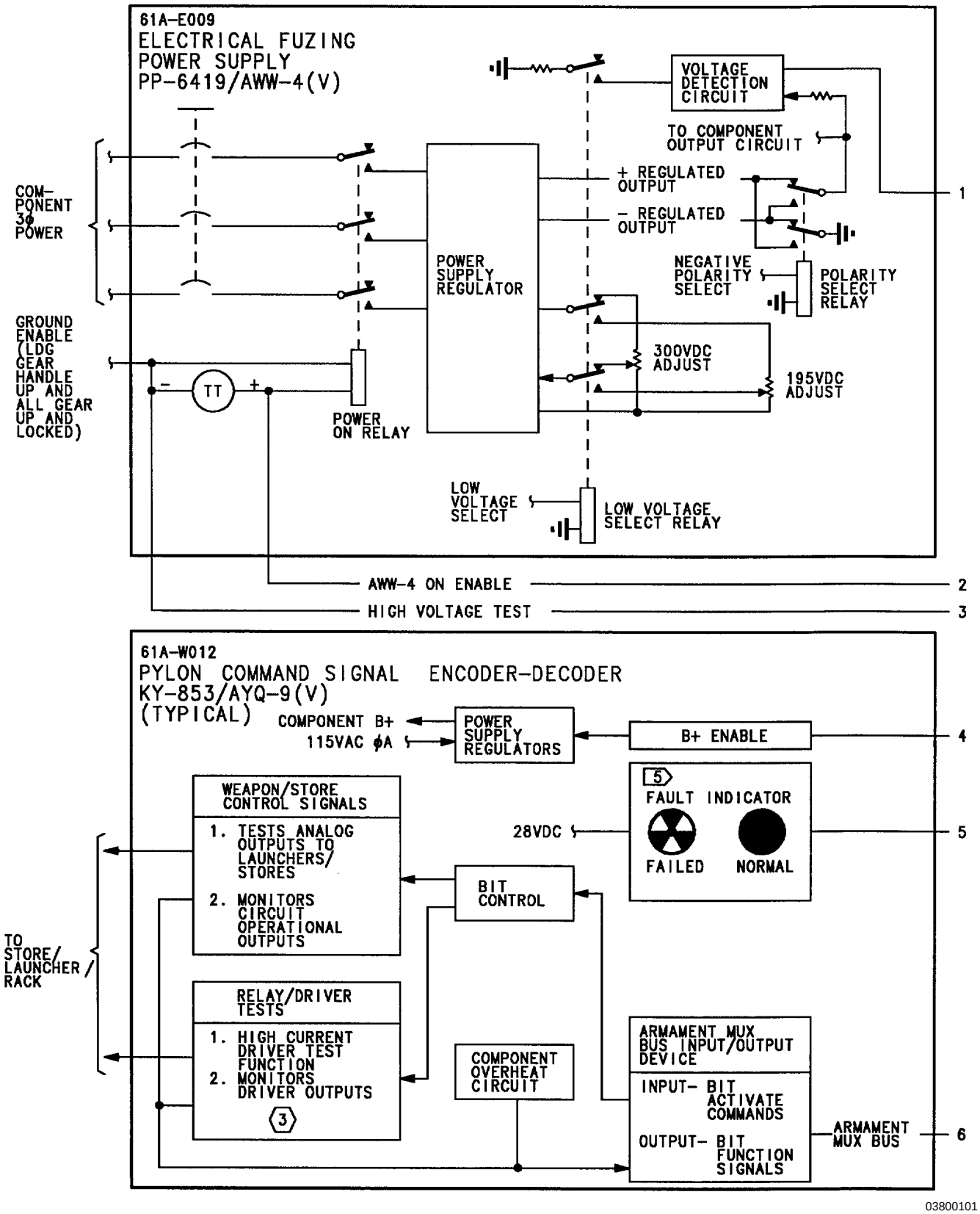


Figure 1. Built-In Test Simplified Schematic (Sheet 1)

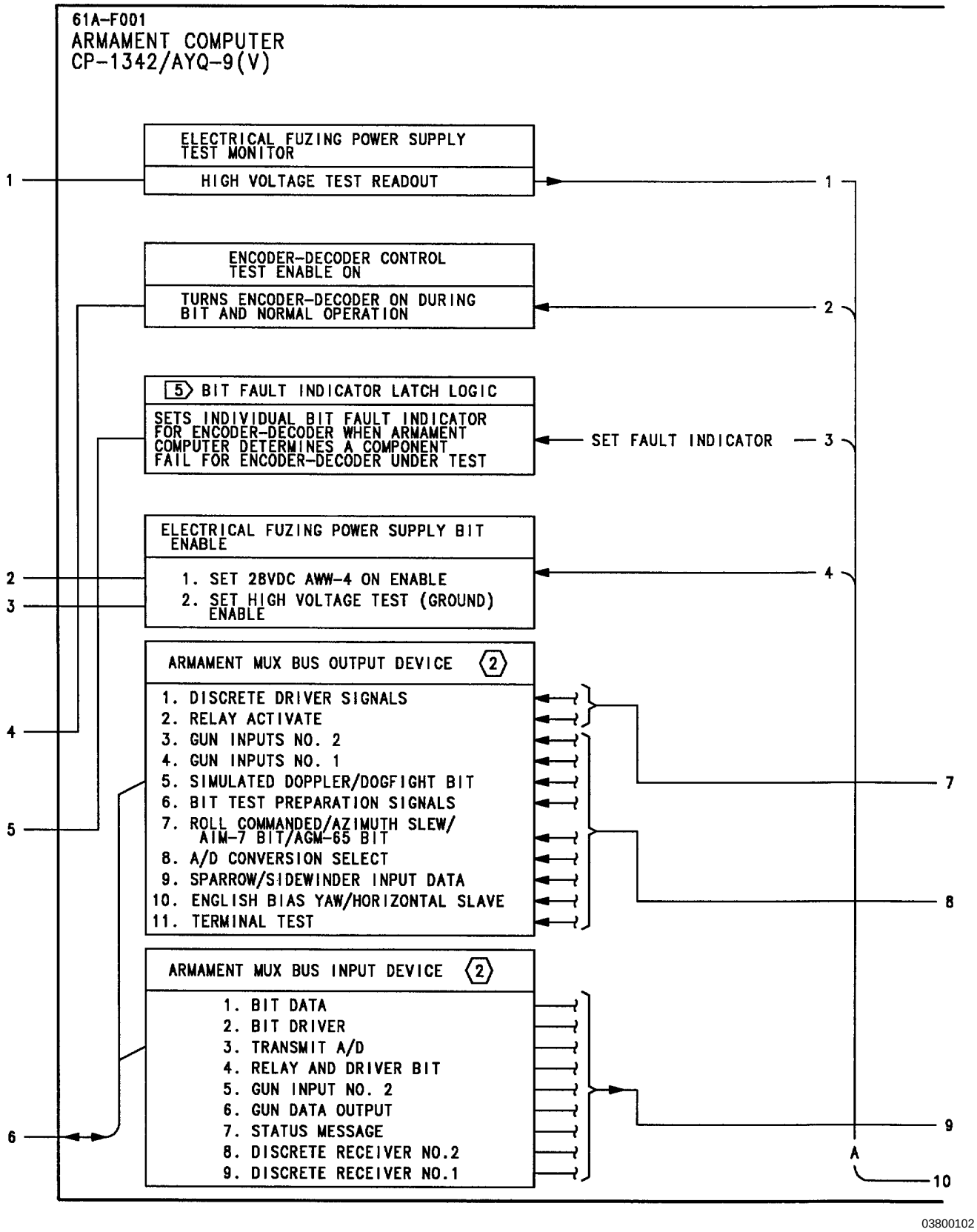


Figure 1. Built-In Test Simplified Schematic (Sheet 2)

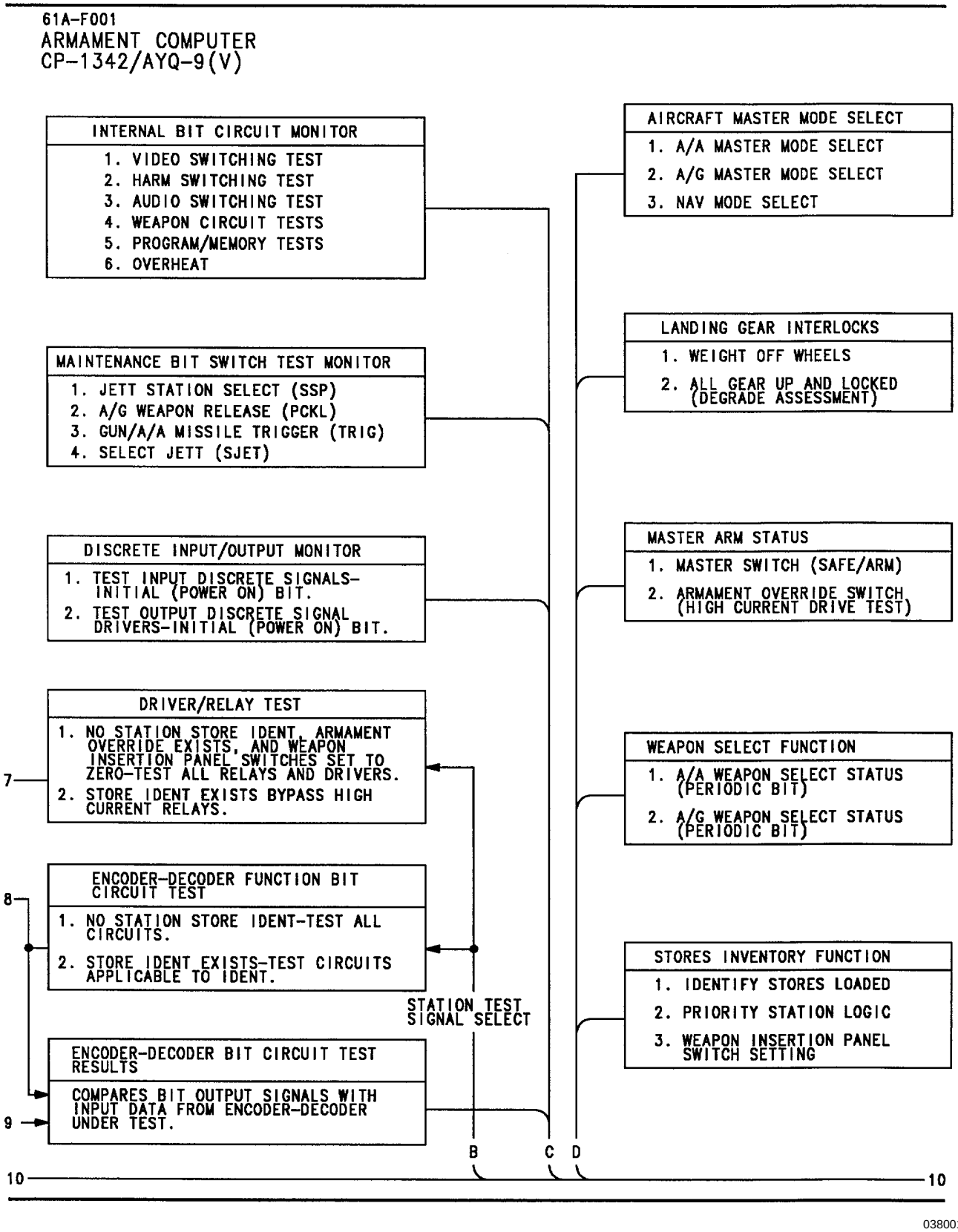
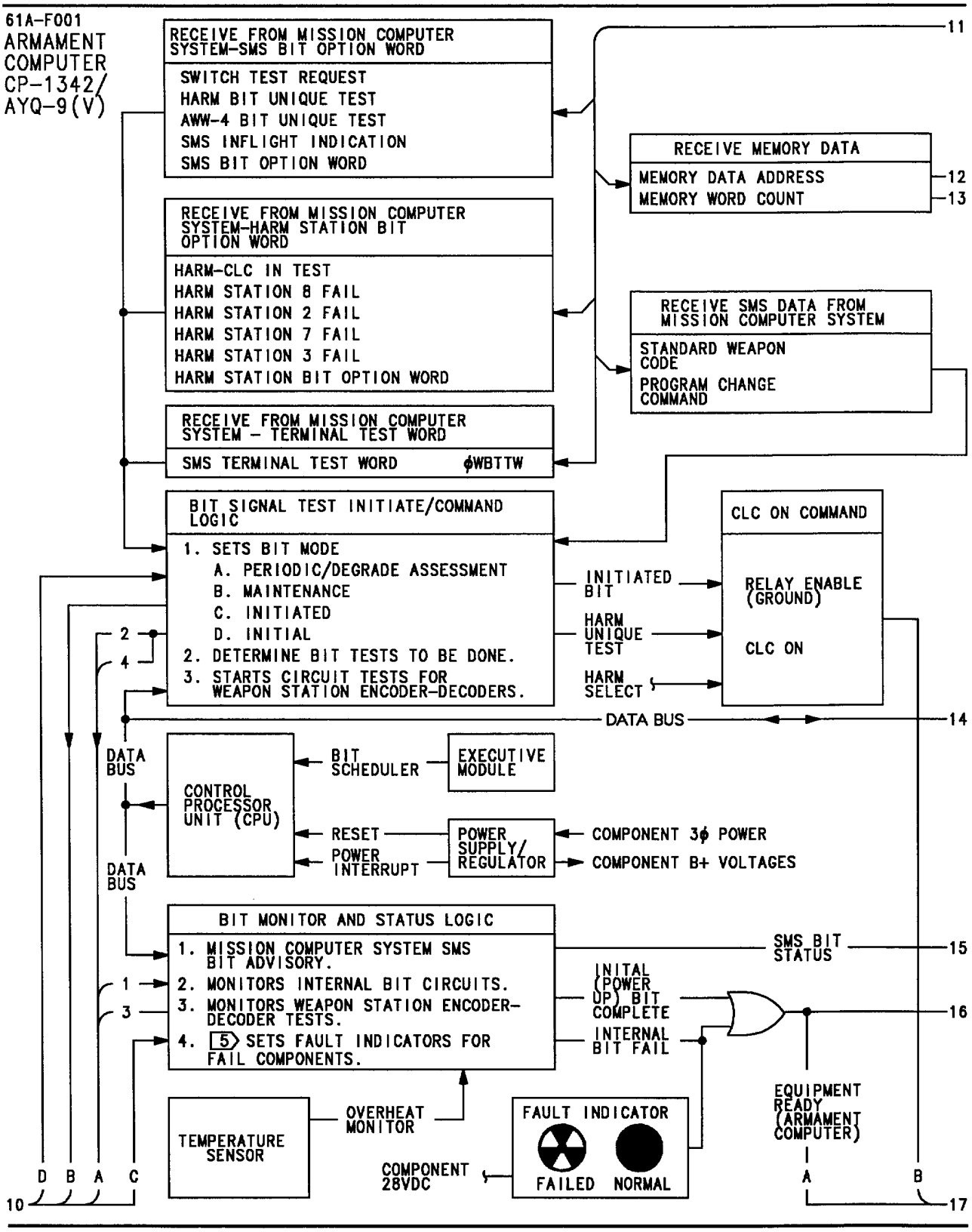
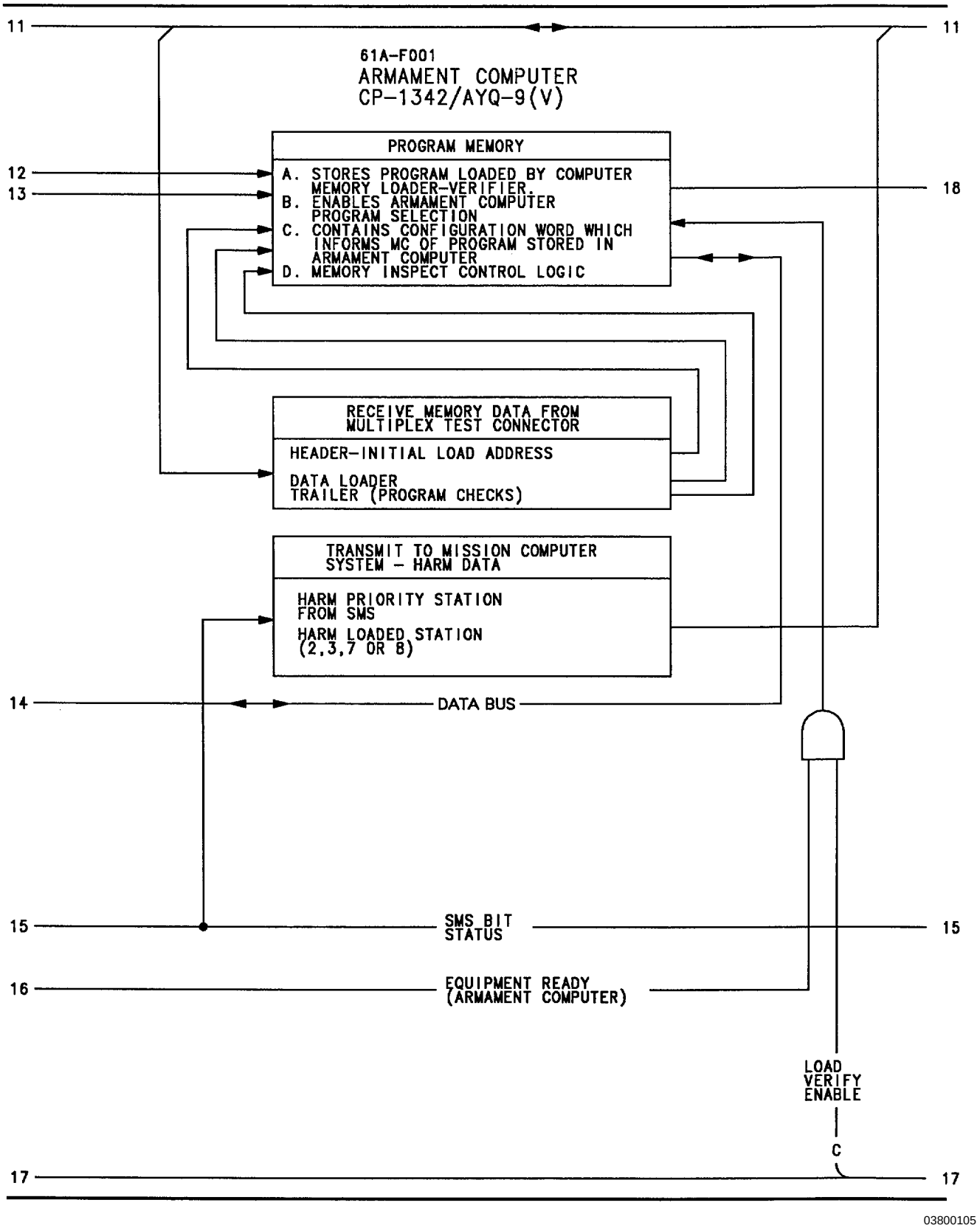


Figure 1. Built-In Test Simplified Schematic (Sheet 3)



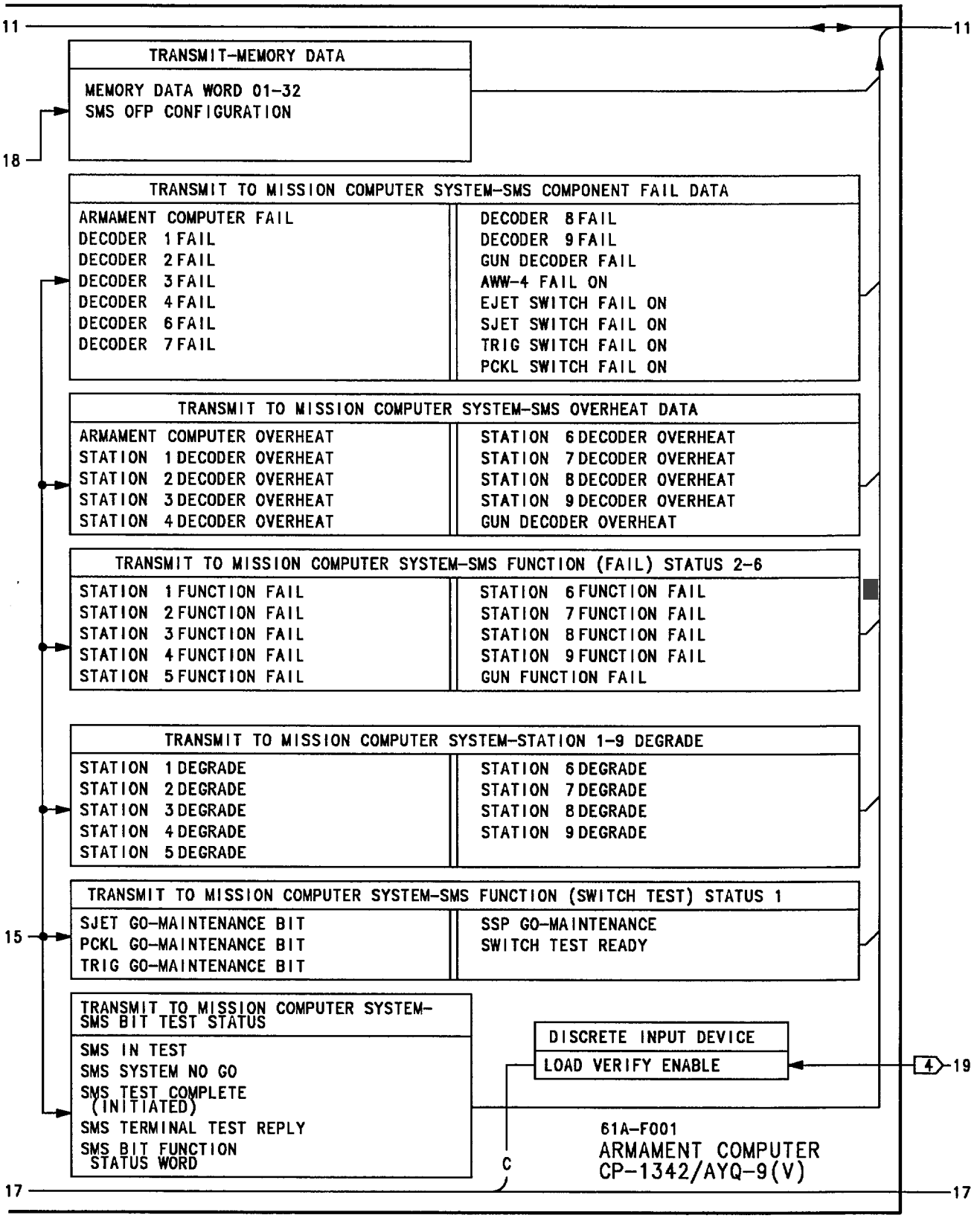
03800104

Figure 1. Built-In Test Simplified Schematic (Sheet 4)



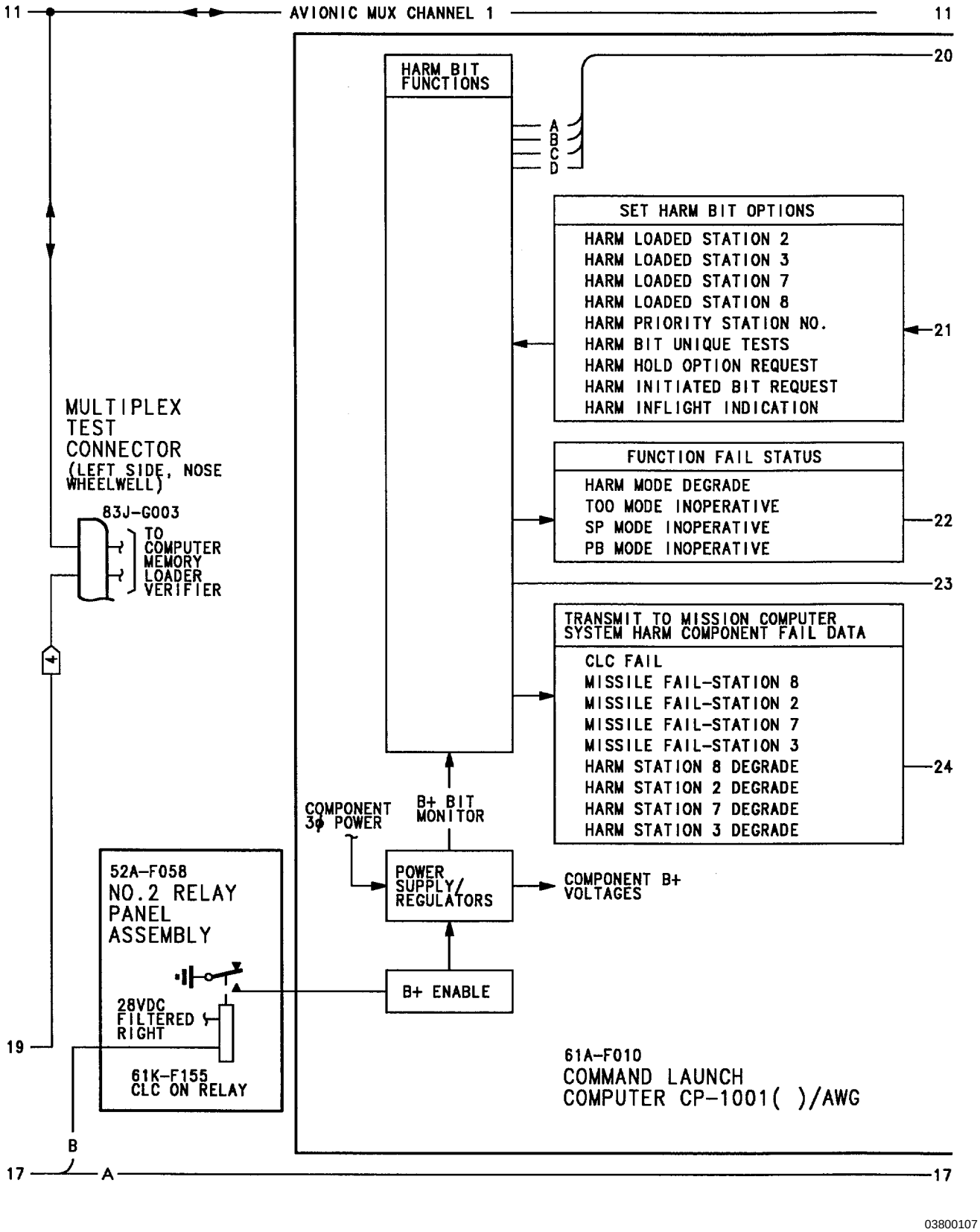
03800105

Figure 1. Built-In Test Simplified Schematic (Sheet 5)



03800106

Figure 1. Built-In Test Simplified Schematic (Sheet 6)



03800107

Figure 1. Built-In Test Simplified Schematic (Sheet 7)

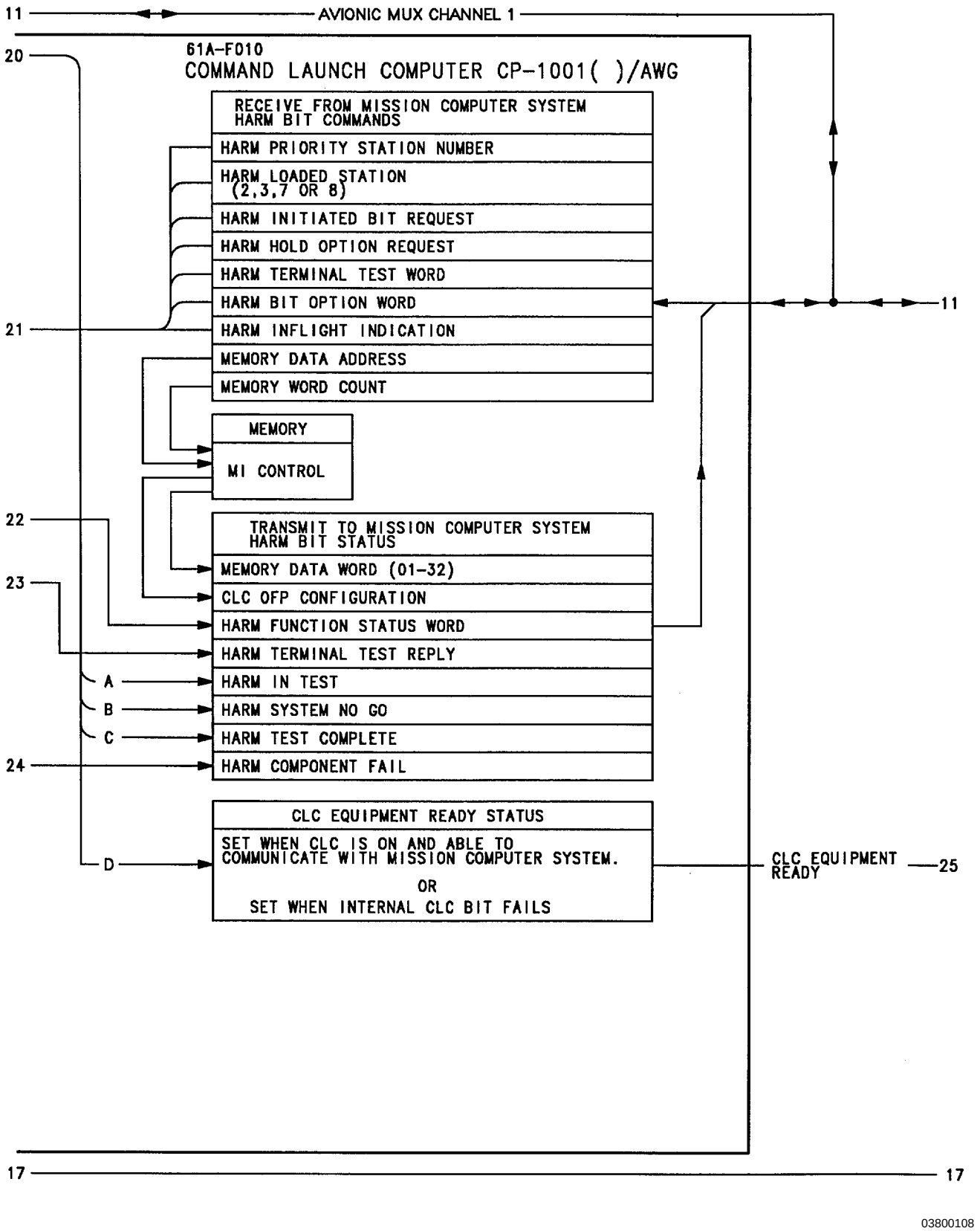


Figure 1. Built-In Test Simplified Schematic (Sheet 8)

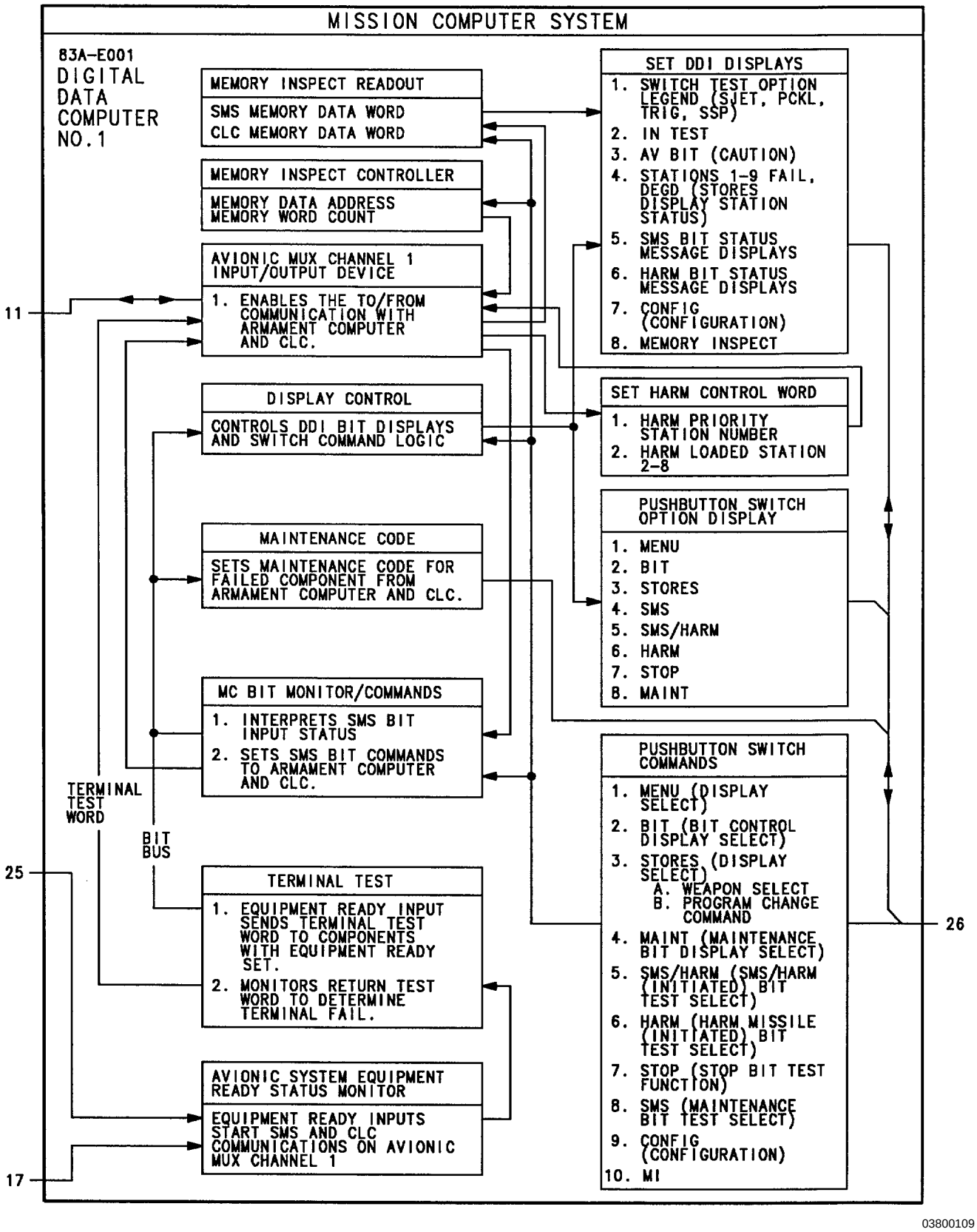


Figure 1. Built-In Test Simplified Schematic (Sheet 9)

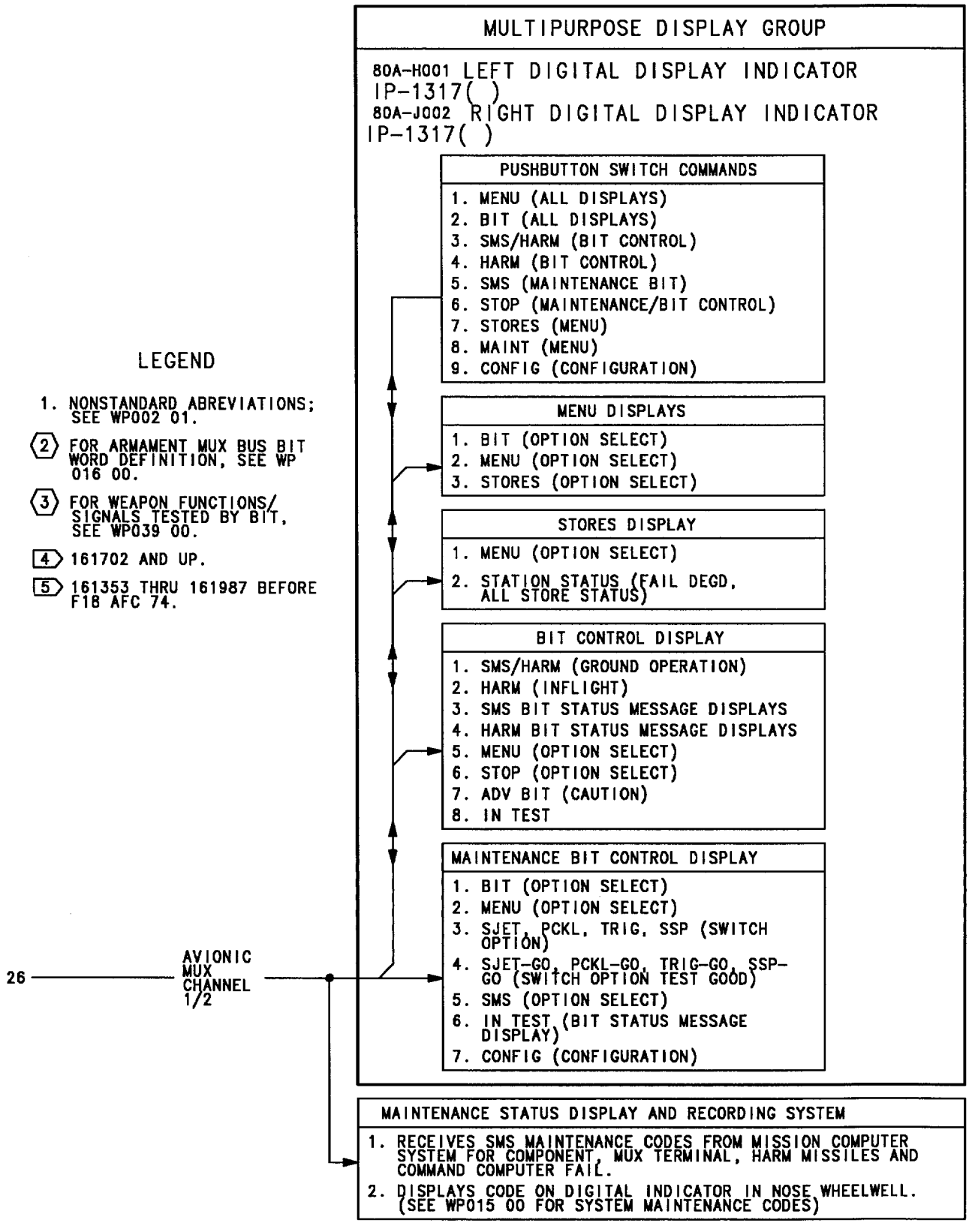


Figure 1. Built-In Test Simplified Schematic (Sheet 10)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - BUILT-IN TEST SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

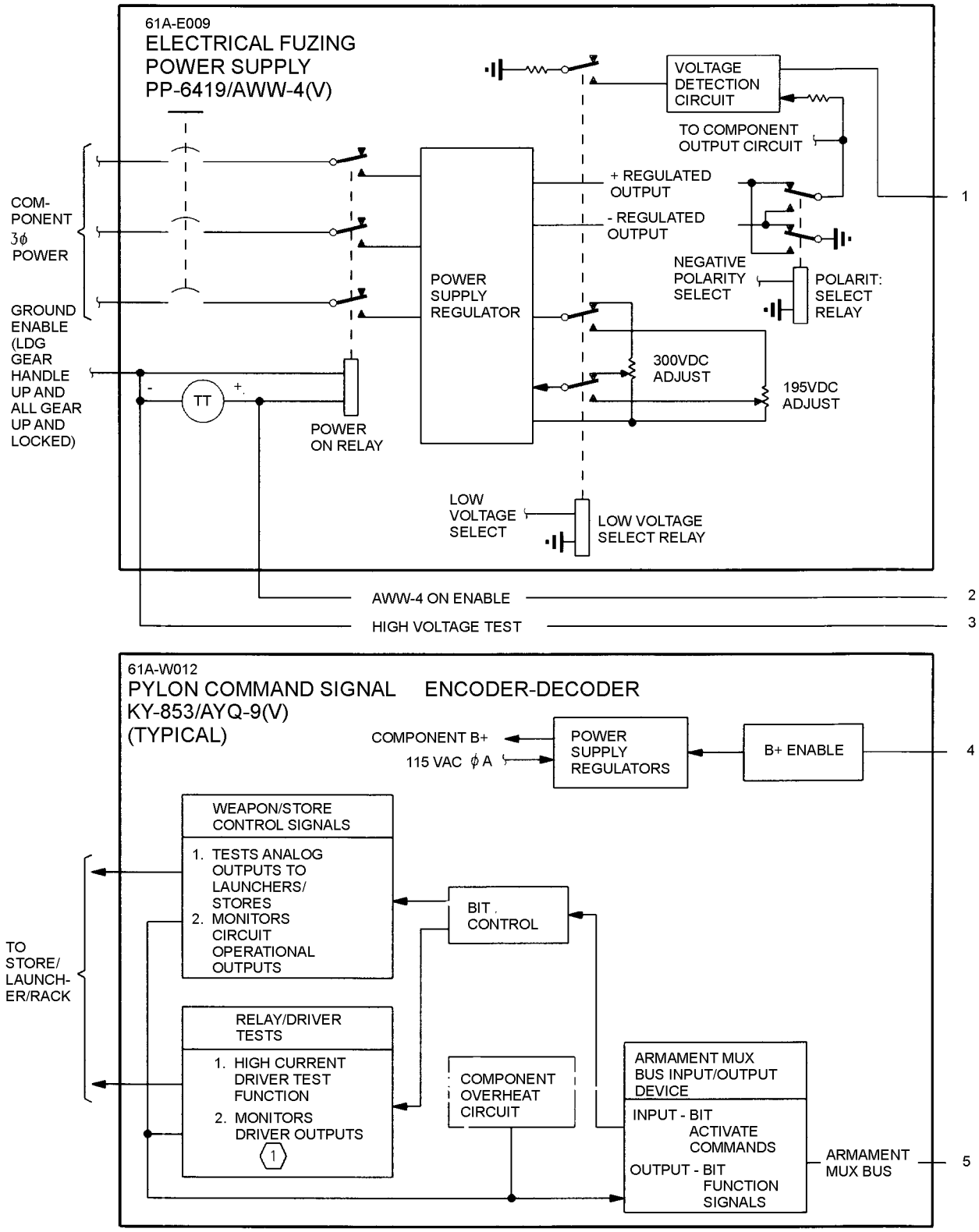
Subject	Page No.
Built-In Test Simplified Schematic, Figure 1	2
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

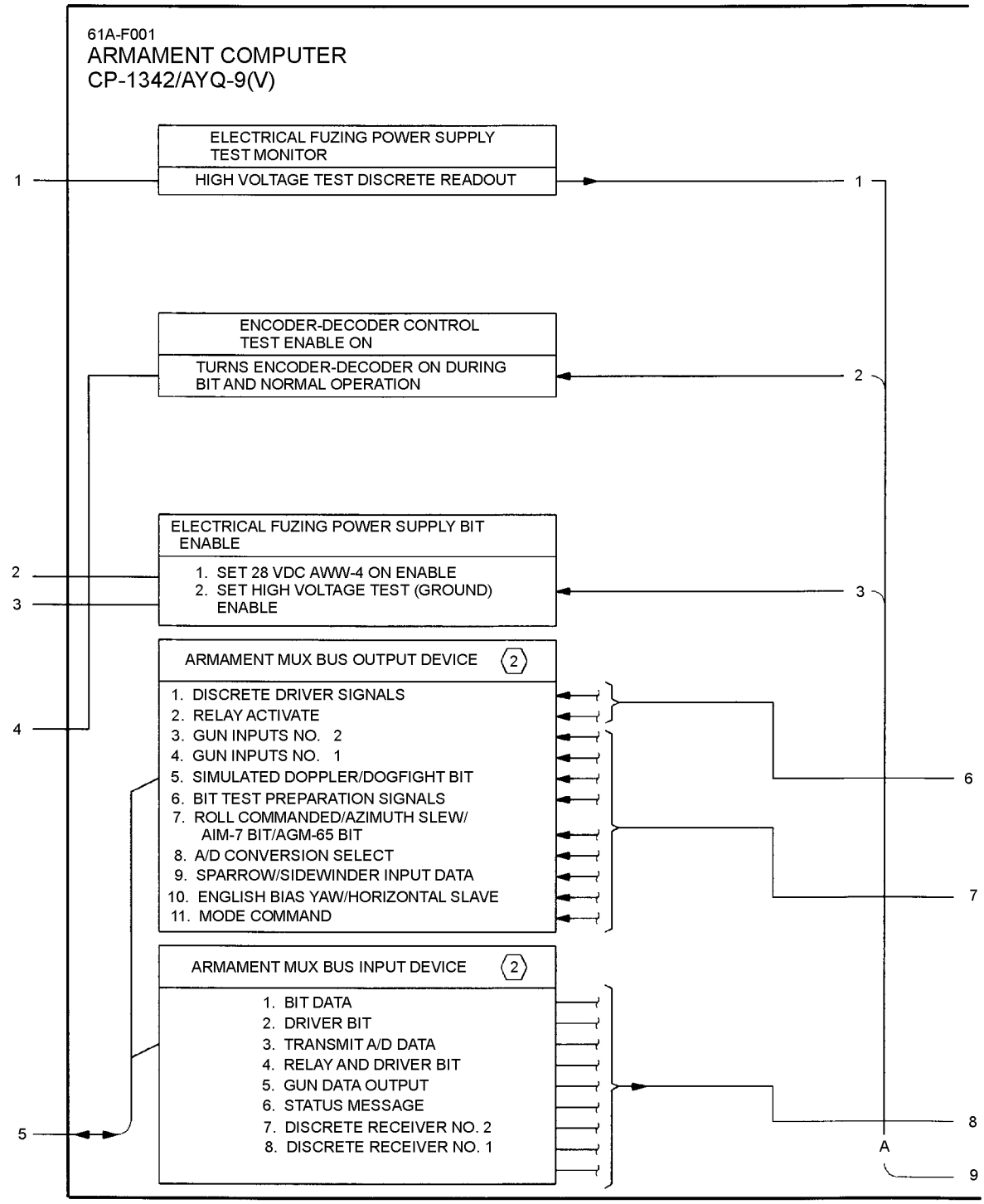
1. INTRODUCTION.

2. This work package provides support for the data in WP037 00.



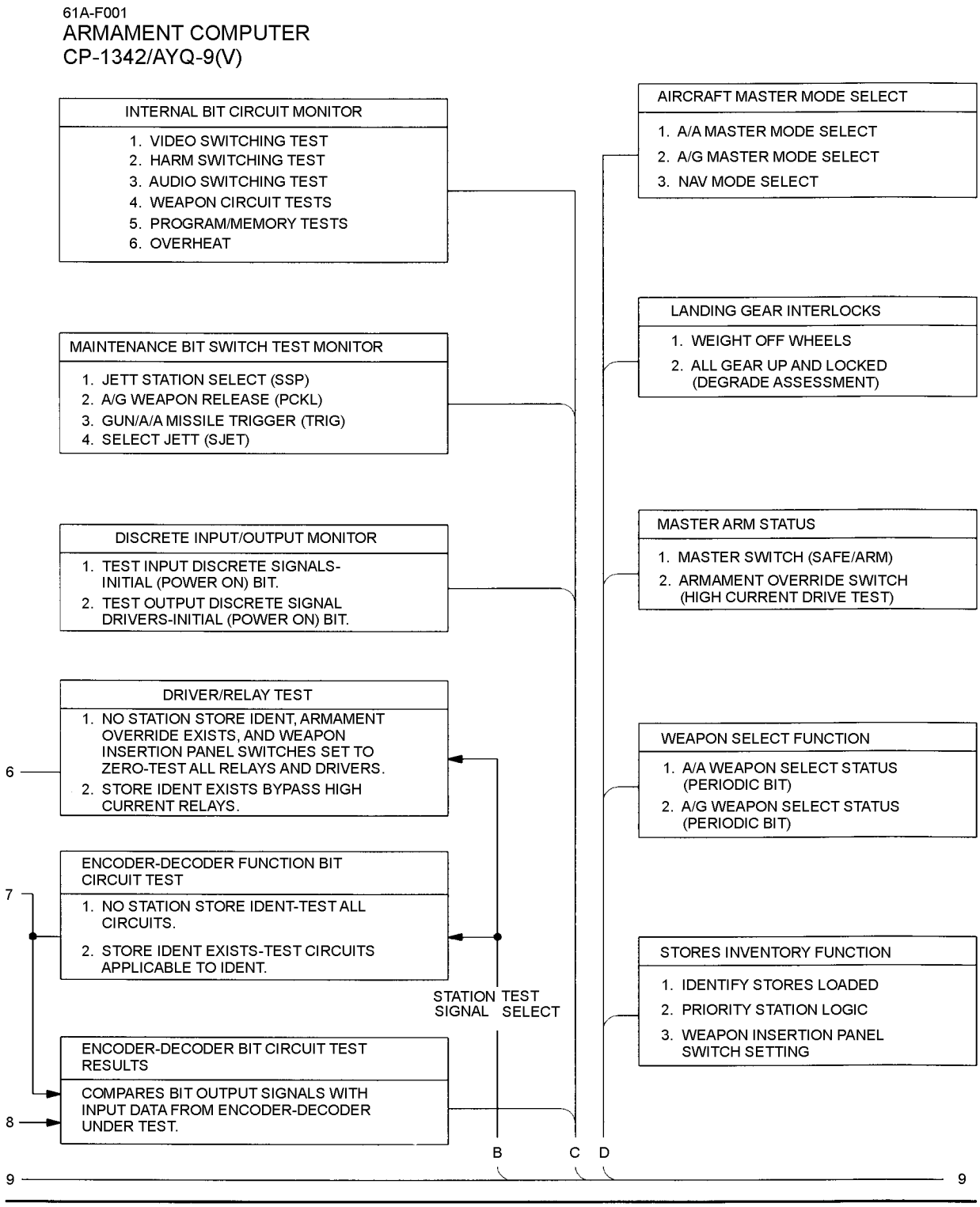
38010101

Figure 1. Built-In Test Simplified Schematic (Sheet 1)



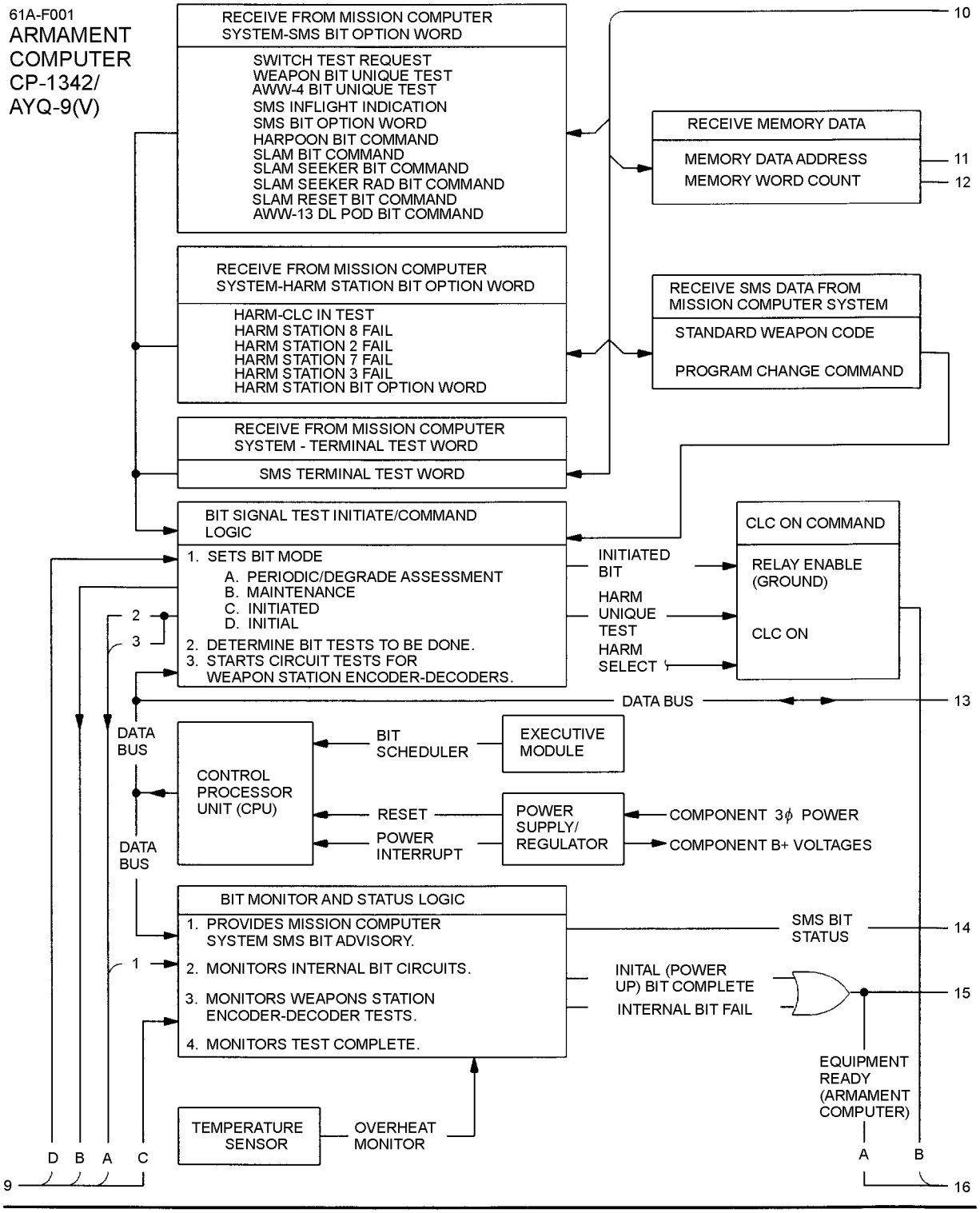
38010102

Figure 1. Built-In Test Simplified Schematic (Sheet 2)



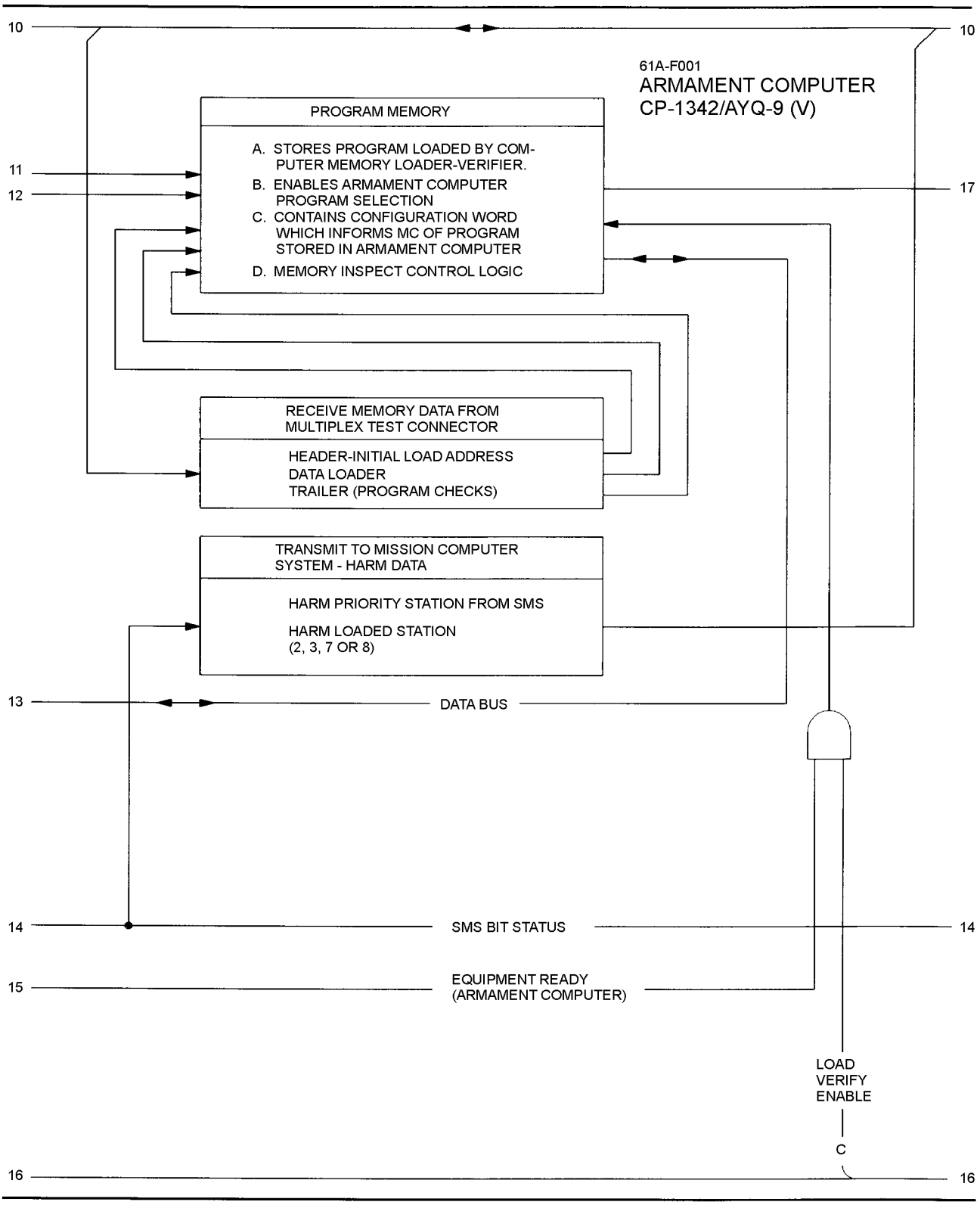
38010103

Figure 1. Built-In Test Simplified Schematic (Sheet 3)



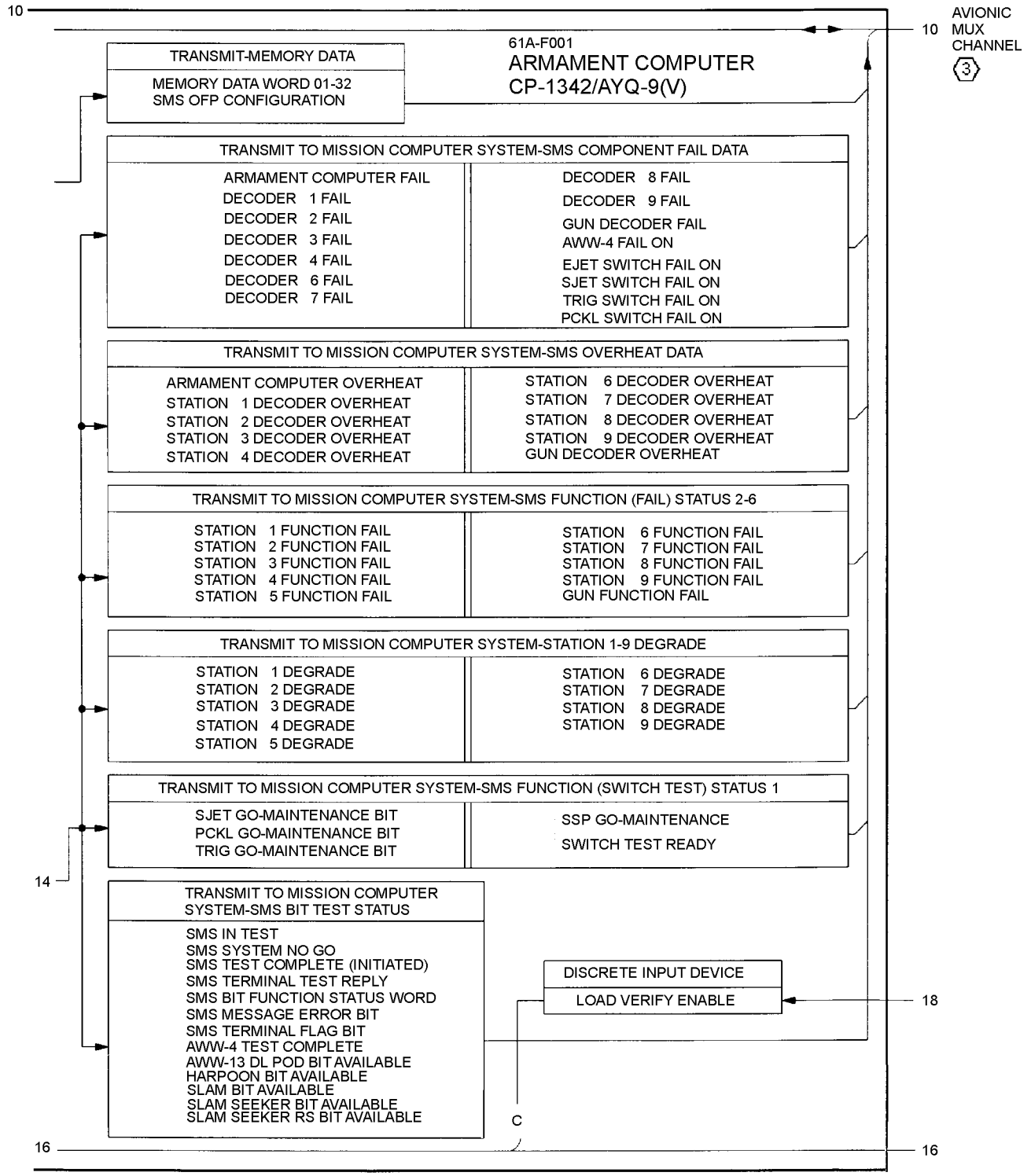
38010104

Figure 1. Built-In Test Simplified Schematic (Sheet 4)



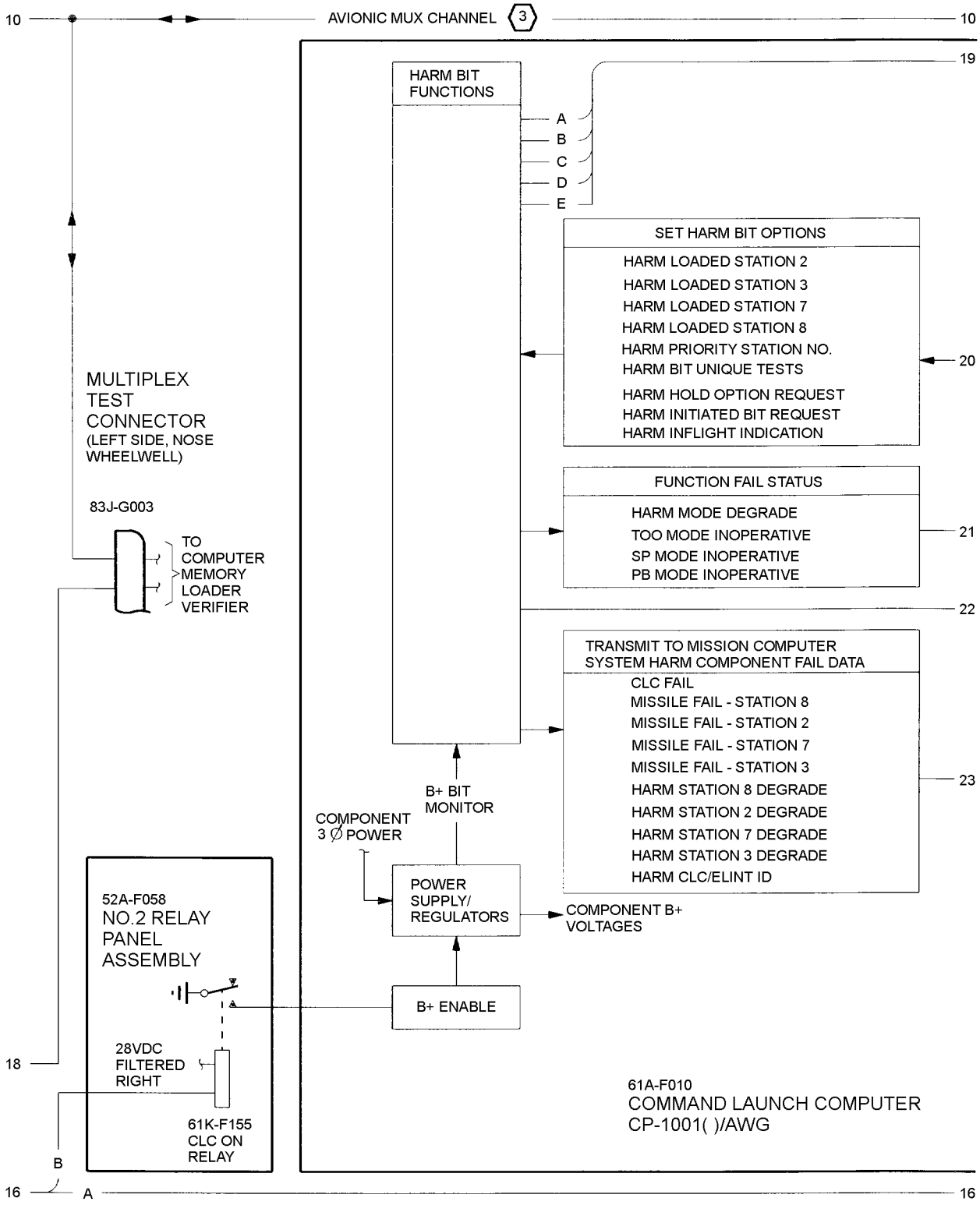
38010105

Figure 1.Built-In Test Simplified Schematic (Sheet 5)



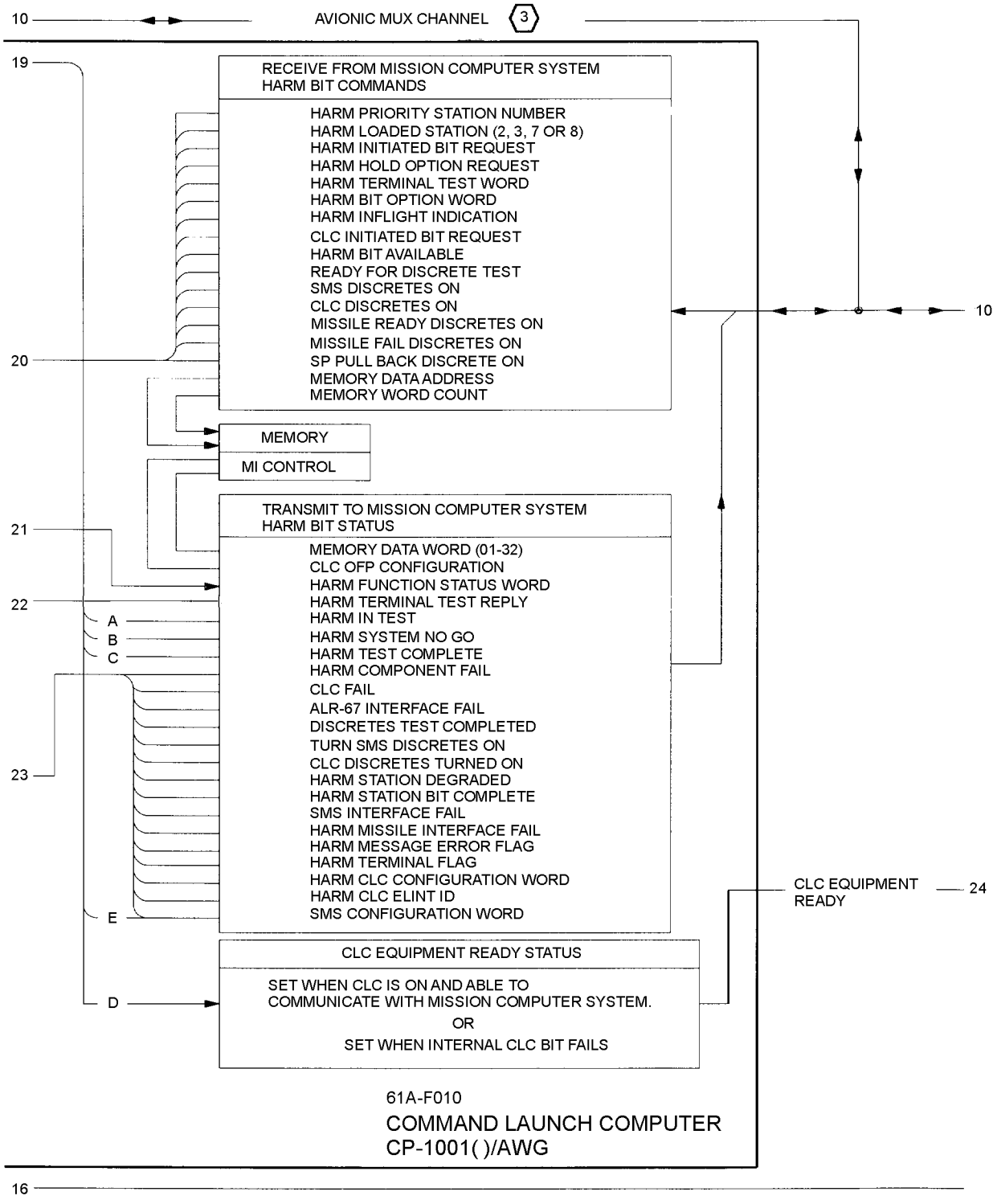
38010106

Figure 1. Built-In Test Simplified Schematic (Sheet 6)



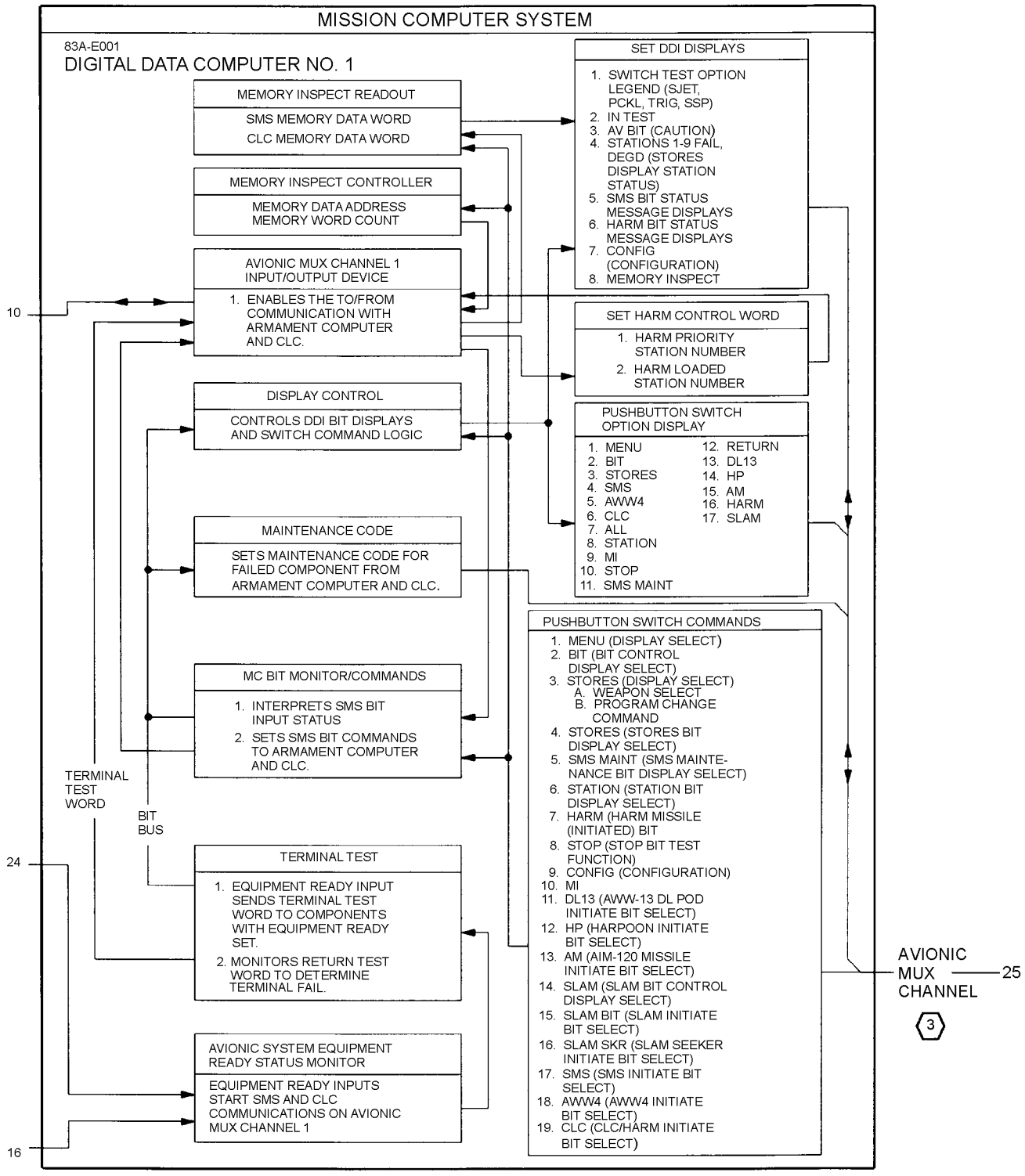
38010107

Figure 1. Built-In Test Simplified Schematic (Sheet 7)



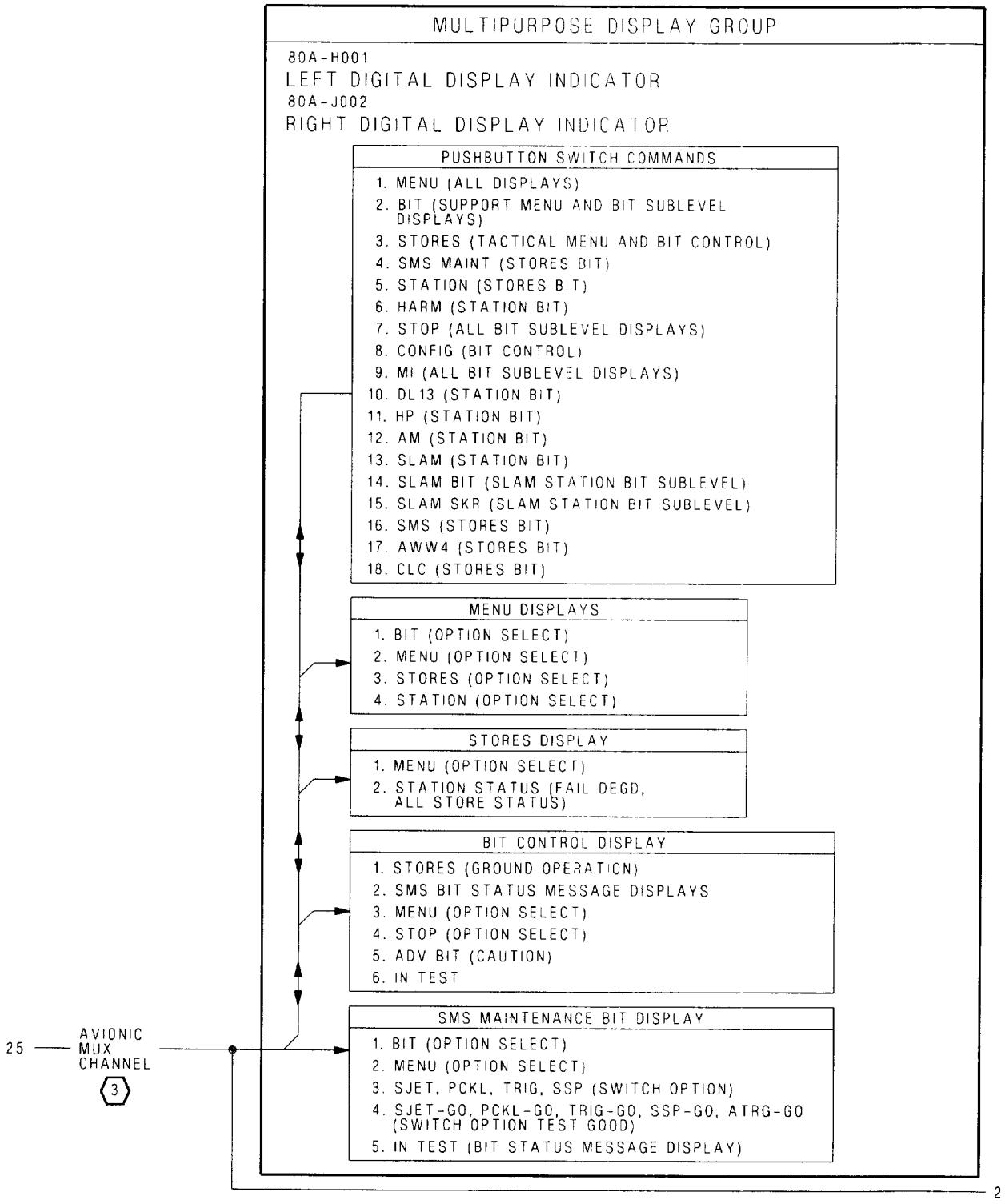
38010108

Figure 1. Built-In Test Simplified Schematic (Sheet 8)



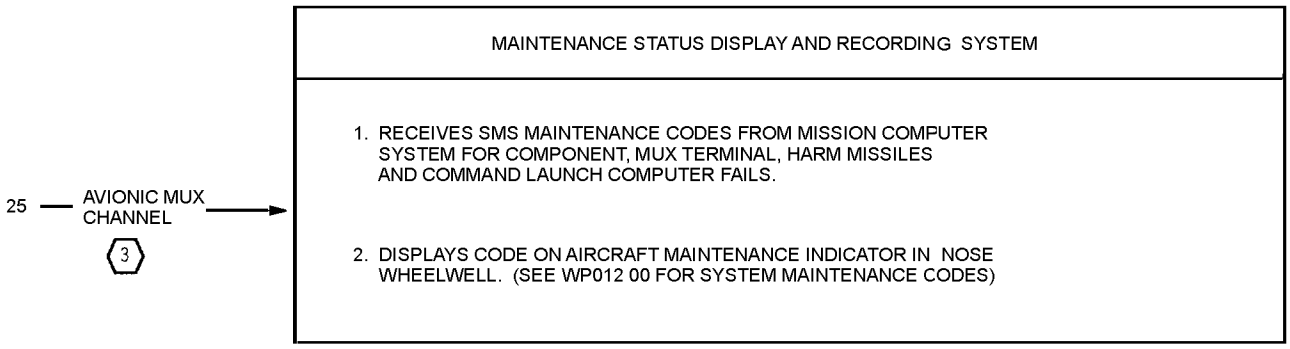
38010109

Figure 1. Built-In Test Simplified Schematic (Sheet 9)



38010110

Figure 1. Built-In Test Simplified Schematic (Sheet 10)



LEGEND

1. FOR WEAPON FUNCTIONS/SIGNALS TESTED BY BIT, SEE WP039 00.
2. FOR ARMAMENT MUX BUS BIT WORD DEFINITION, SEE WP016 00.
3. SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

38010111

Figure 1. Built-In Test Simplified Schematic (Sheet 11)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

TABLES - BUILT-IN TEST

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
AGM-65 BIT Tests, Table 4	4
AGM-84 BIT Tests, Table 8	7
AGM-84E BIT Tests - WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/ IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000), Table 9	7
AGM-154 BIT Tests, Table 10	8
AGM-88 BIT Tests, Table 3	3
AGM-84H BIT Tests, Table 12	9
AIM-7 BIT Tests, Table 1	2
AIM-9 BIT Tests, Table 2	3
GBU-31 BIT Tests, Table 11	9
Bomb BIT Tests, Table 5	4
AIM-120 BIT Tests, Table 13	10
Gun BIT Test, Table 6	6
Introduction	1
Rocket BIT Tests, Table 7	6

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION

2. The built-in test (BIT) tables in this work package support the data in WP037 00.

Table 1. AIM-7 BIT Tests

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
AIM-7 Ident	X	X	X	X
English Bias Pitch	X	X	X	X
Altitude 1 and 2	X	X	X	X
Battery Armed	X	X	X	X
Simulated Doppler	X	X	X	X
Eject 1 and 2 (fuselage)			X	
Motor Fire			X	
Launcher Lock Command/Monitor	X	X	X	
Launcher Unlock Command/Monitor	X	X	X	
Armament Mux Bus	X	X	X	X
Inflight Switch	X	X	X	X
Dogfight/Sweep Control	X	X	X	X
Battery and Hydraulic Activate			X	
Roll Command	X	X	X	X
Sweep Select	X	X	X	X
English Bias Yaw/Roll Gain Command	X	X	X	X
Recycle	X			
PD Command	X			
Head Aim Pitch/True Airspeed	X	X	X	X
Head Aim Yaw/Range at Launch	X	X	X	X
LAU-115( ) Solenoid Unlock Monitor	X		X	X

Table 2. AIM-9 BIT Tests

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
AIM-9 Ident (Station 1 and 9)	X	X	X	X
Coolant Control	X	X	X	X
Master Arm AIM-9 Driver			X	
Launch Command (Driver)			X	
Audio	X	X	X	X
Acquisition Lambda	X	X	X	X
Head Command	X	X	X	X
Left/Right Reference	X	X	X	X
Manual Uncage	X	X	X	X
AIM-9 Ident Left (Station 2 and 8)	X	X	X	X
AIM-9 Ident Right (Station 2 and 8)	X	X	X	X
Right Missile Select	X	X	X	

Table 3. AGM-88 BIT Tests

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
AGM-88 Ident	X	X	X	X
AGM-88 Fire			X	

Table 4. AGM-65 BIT Tests

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
Slave Enable	X	X	X	X
Azimuth Slew	X	X	X	X
Elevation Slew	X	X	X	X
Azimuth Gimble Angle	X	X	X	X
Elevation Gimble Angle	X	X	X	X
Code Data Enter	X	X	X	X
AGM-65 Ident	X	X	X	X
Vertical Slave Command	X	X	X	X
Horizontal Slave Command	X	X	X	X
Selected Missile Ready	X	X	X	X
Uncage	X	X	X	
AGM-65 Select	X	X	X	
Slew Enable	X	X	X	
Station Select	X	X	X	
Manual Sequence	X	X	X	
Dome Cover Power			X	
Launch			X	

Table 5. Bomb BIT Tests

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
Store Aboard BRU-32	X	X	X	X
Store Aboard BRU-33 Left/TER Ident	X	X	X	X

Table 5. Bomb BIT Tests (Continued)

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Store Aboard BRU-33 Right/MER Ident	X	X	X	X
BRU-33 Ident	X	X	X	X
Multiple Ejector Rack (MER)/BRU-41/BRU-42 Ident	X	X	X	X
MER/TER Station Transfer	X	X	X	X
BRU-32 Nose/Tail Arm	X	X	X	
BRU-33 Nose/Tail Arm	X	X	X	
BRU-32 Lock Driver	X	X	X	
BRU-32 Unlock Driver	X	X	X	
BRU-32 Lock Monitor	X	X	X	X
BRU-32 Unlock Monitor	X	X	X	X
BRU-33 Lock Driver	X	X	X	
BRU-33 Unlock Driver	X	X	X	
BRU-33 Lock Monitor (Left, Right)	X	X	X	X
BRU-33 Unlock Monitor (Left, Right)	X	X	X	X
BRU-32 Fire 1			X	
BRU-32 Fire 2			X	
BRU-32 Fire 1 and 2			X	
BRU-33 Fire 1			X	
BRU-33 Fire 2			X	
BRU-33 Fire 1 and 2			X	
Auxiliary Fire			X	
Lock Override			X	
Stepping and Firing			X	
BRU-33 Left/Right Select	X	X	X	

Table 6. Gun BIT Test

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
Purge Air/Gun Scavenge	X	X	X	X
Hydraulic Motor Solenoid	X	X	X	X
Firing Output	X	X	X	X
Clearing Solenoid	X	X	X	X
Flow Regulator Solenoid	X	X	X	X
Last Round/Round Limit	X	X	X	X
Magnetic Speed Sensor	X	X	X	X

Table 7. Rocket BIT Tests

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
Store Aboard BRU-32	X	X	X	X
Store Aboard BRU-33 Left/TER Indent	X	X	X	X
Store Aboard BRU-33 Right/MER Indent	X	X	X	X
BRU-33 IDENT	X	X	X	X
Rocket Select	X	X	X	
BRU-33 Fire 1			X	
BRU-33 Fire 2			X	

Table 8. AGM-84 BIT Test

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Deselect	X	X	X	X
Intent To Launch			X	
Destruct Disable CMD With AGM-84 (Exercise)				
Serial Data Channels Clock, Data Enable	X	X	X	X
Abort CMD			X	
Missile Enabled	X	X	X	X
14-3 Nose Arm	X	X	X	
Aux Fire			X	
Lock Override			X	
14-30 Fire 1			X	
14-30 Fire 2			X	
14-30 Lock Driver	X	X	X	
14-30 Unlock Driver	X	X	X	

Table 9. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E BIT Test

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Deselect	X	X	X	X
Intent To Launch			X	
Destruct Disable CMD With AGM-84 (Exercise)				
Serial Data Channels Clock, Data Enable	X	X	X	X

Table 9. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E BIT Test (Continued)

Test Signal	Initial (Power On) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Abort CMD			X	
Missile Enabled	X	X	X	X
14-3 Nose Arm	X	X	X	
Aux Fire			X	
Lock Override			X	
14-30 Fire 1			X	
14-30 Fire 2			X	
14-30 Lock Driver	X	X	X	
14-30 Unlock Driver	X	X	X	

Table 10. AGM-154 BIT Test (EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292)

Test Signal	Power On BIT	Inititated BIT	Initiated BIT with High Current drivers	Degrade Mode Assessment
Armament mux	X	X	X	X
Fire ready			X	
Electronic altitude sensing bypass	X	X	X	
AGE	X	X	X	
Motor fire			X	
Missile ident	X		X	X

Table 11. GBU-31 BIT Test
(EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292)

Test Signal	Power On BIT	Initiated BIT	Initiated BIT with High Current drivers	Degrade Mode Assessment
Armament mux	X	X	X	X
Fire ready			X	
Electronic altitude sensing bypass	X	X	X	
AGE	X	X	X	
Motor fire			X	
Missile ident	X		X	X

Table 12. AGM-84H BIT Test
(EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292)

Test Signal	Power On BIT	Initiated BIT	Initiated BIT with High Current drivers	Degrade Mode Assessment
Deselect	X	X	X	X
Intent to launch			X	
Serial data channels clock, data enable	X	X	X	X
Abort command			X	
Missile enabled	X	X	X	X
14-30 nose arm	X	X	X	
Auxiliary fire			X	
Lock override			X	
14-30 fire 1			X	
14-30 fire 2			X	
14-30 lock driver	X	X	X	
14-30 unlock driver	X	X	X	

Table 13. AIM-120 BIT Tests
(EFFECTIVITY: 161353 thru 163175, After F/A-18 AFC 253 or F/A-18 AFC 292)

Test Signal	Initial (Power Up) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/ Degrade Mode Assessment
Armament mux bus	X	X	X	X
Umbilical retract			X	
Launcher lock command	X	X	X	X
Launcher unlock command	X	X	X	X
Eject command 1			X	
Eject command 2			X	
Release consent	X	X	X	X
Eject command 1 and 2			X	
Right missile select	X	X	X	X

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - VIDEO SWITCHING

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Video Switching Simplified Schematic WP041 00
Weapon Control System A1-F18AC-740-500
Armament Computer Input/Output Interface Schematic WP011 00

Alphabetical Index

Subject	Page No.
Armament Computer Switching	3
Introduction	1
Store Video	2
Store Video Select	2
Video Select Displays, Figure 1	4
Video Switching Operation	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION

2. Stores Management System (SMS) video switching operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP041 00 for the simplified video switching schematic, the simplified schematic shows the video switching operation. The schematic shows the video switching circuits for weapon stations 2, 3, 5, 7, and 8. It also shows the video switching for the forward looking infrared (FLIR) system when installed on fuselage station 4. FLIR video switching is the only function done by the SMS for the FLIR system. The Armament Computer Input/Output Interface Schematic (A1-F18AC-740-500, WP011 00) shows detailed video switching operation.

4. Figure 1 shows displays related to video switching operation.

6. Refer to WP014 00 for component locations.

6. VIDEO SWITCHING OPERATION.

7. Video switching operation in this work package is listed below:

a. store video

b. store video select

c. armament computer switching

8. **STORE VIDEO.** Store video is displayed on the left or right Digital Display Indicator (DDI) IP-1317( ). The armament computer switching relays output the discrete store video to the selected DDI for display. Stores that have video displays are listed below:

a. AGM-65 maverick (stations 2, 3, 7, and 8)

b. FLIR system (station 4)

c. Control - Monitor Set AN/AWW-13 (advanced data link pod) (stations 2, 3, 5, 7 and 8) (AFTER AFC 253 OR 292)

9. **STORE VIDEO SELECT.** Figure 1 shows the displays used to select store video. Select signals are set by pressing pushbutton switches on the DDI. Those signals are sent to the mission computer (MC) system. The MC system sends the select commands to the SMS on the avionic mux bus.

10. **Menu Display - WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000),** the MENU display has the pushbutton switch options STORES at pushbutton switch 5, FLIR at pushbutton switch 6, and Maverick display (MAV DSPLY), at pushbutton switch 10. These switch options are used when weapon video is to be displayed.

11. **Menu Display - (AFTER AFC 253 OR 292).** The tactical MENU display has the pushbutton switch options STORES at pushbutton switch 5, FLIR at pushbutton switch 6, or advanced data link pod (DL13 DSPLY) at pushbutton switch 8. Maverick display (MAV DSPLY) can be displayed at pushbutton switch 10 when in A/G mode and the weapon is selected. Stand off land attack missile used with advanced data link pod display (SLAM-13 DSPLY) can be displayed at pushbutton switch 10 when in A/G mode and the weapon is selected. These switch options are used when weapon video is to be displayed.

12. FLIR Select. The FLIR pushbutton option appears on the MENU display when the FLIR system is on and communicating with the MC system. Pressing the FLIR pushbutton switch removes the MENU display and puts FLIR video on the indicator. FLIR video may be selected in A/A, A/G or NAV aircraft master mode.

13. DDI Pushbutton Switch 10 - ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND WITH DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) MAV DSPLY option is displayed when Maverick is the selected weapon. Pressing DDI pushbutton switch 10 causes the selected weapon video to appear on the indicator. If the video was displayed on the opposite indicator (left or right DDI), the indicator that had the display changes to a MENU display.

14. DDI Pushbutton Switch 10 - AFTER AFC 253 OR 292. MAV DSPLY option is displayed when Maverick is the selected weapon. SLAM-13 DSPLY option is displayed when advanced data link pod is selected and assigned to stand off land attack missile. Pressing DDI pushbutton switch 10 causes the selected weapon video to appear on the indicator. If the video was displayed on the opposite indicator (left or right DDI), the indicator that had the display changes to a MENU display.

15. Stores Display Select. The stores display is selected by pressing the STORES pushbutton switch on the MENU display. This display provides selection of the stores with video.

16. AFTER AFC 253 OR 292, if DL13 DSPLY is selected from the tactical menu, WPN is displayed at pushbutton 1. Selecting WPN allows assigning the DL13 to SLAM or SLMR on another aircraft or PRI STA can be selected which will assign the DL13 pod to the primary selected station on self aircraft. If SLAM is the selected weapon, DL13 will automatically be assigned to the SLAM. SLAM ER can only be used with the DL13 pod. When SLMR is the selected weapon, the DL13 pod will automatically be assigned to that weapon.

17. **Stores Display - WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000),** When A/G aircraft master mode is selected, the stores display has A/G weapon related acronyms displayed on the top row of pushbutton switches. The weapon options are displayed as a function of the stores inventory. The acronym for video weapons is MAV (maverick).

18. **Stores Display - AFTER AFC 253 OR 292.** When A/G aircraft master mode is selected, the stores display has A/G weapon related acronyms displayed on the top row of pushbutton switches. The weapon options are displayed as a function of the stores inventory. The acronyms for video weapons are MAV (maverick), DL13 (advanced data link pod), SLAM (stand-off land attack missile) or SLMR (stand-off land attack missile - expanded response).

19. Weapon Select. A/G weapons are selected by pressing the pushbutton switch for the weapon to be selected. Selecting the weapon boxes the acronym by the pushbutton switch and boxes the weapon on the wing form display for the first weapon in the priority release sequence. The stores display is removed and weapon video is displayed on the indicator.

20. **ARMAMENT COMPUTER SWITCHING.** The armament computer program uses weapon select and the avionic mux bus commands from the MC system to control video switching logic. The six weapon video inputs to the armament computer are sent to the select (latching) relays. These relays determine the station video selected for display and the DDI the video will be displayed on. Armament computer functions used to do the video switching are listed below:

a. latching relay functions

b. pylon station select relays

c. FLIR video select

d. channel A/B select

e. video amplifiers

21. **Latching Relay Functions.** The latching relays are used for all the video switching functions except the BIT video relay A1K8. Each relay except the BIT video relay has an on and off coil, one of which must be energized to change the state of the relay contacts.

22. Two commands are required to energize a relay coil; one for the relay coil power (28vdc) and the other the coil ground enable. The on driver controls the power to the on coils (B) and the off driver controls power to the off coils (A). Switch grounds are applied to the relay coil as a function of the weapon select/armament computer output select.

23. **Pylon Station Select Relays.** Pylon weapon station video is switched by station 2 or 3 select relay A1K1, station 7 or 8 select relay A1K2, and left/right wing pylon select relay A1K3. The station select logic is the first available weapon in the priority release sequence for the weapon type selected. This logic controls when the on or off drivers are enabled and the switch enables are sent to the relays.

24. Station 2 video is selected by applying 28vdc off driver voltage to the A1K1, A1K3, and A1K4 coils and enabling the relay coil ground enable switches. The relay switching functions for stations 3, 7, and 8 operate using the same type of logic.

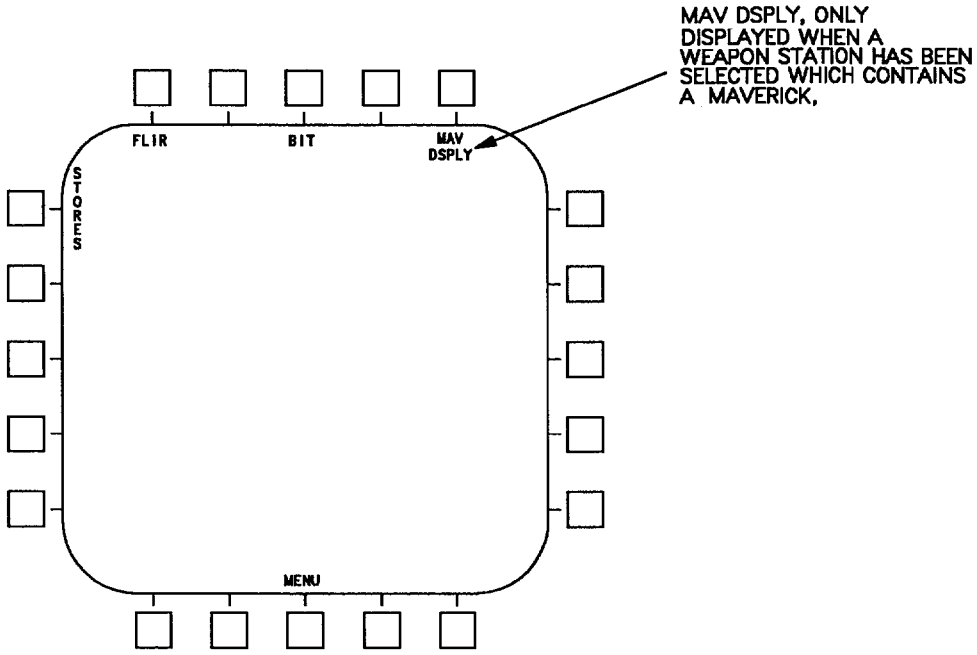
25. **FLIR Video Select.** Weapon or FLIR select relay A1K4 determines when FLIR or weapon stations 2, 3, 7, or 8 are displayed. To display FLIR video, 28vdc on driver and A1K4 switch are enabled. This causes the B coil (on) to energize and enable FLIR video for display.

26. **Weapon Video Select.** Weapon video select relay A1K5 selects when weapon station 5 or 6 or weapon station 2, 3, 7 or 8 is displayed. To display the station 5 video, 28vdc on driver and A1K5 switch are enabled. This causes the B coil (on) to energize and enable station 5 video for display.

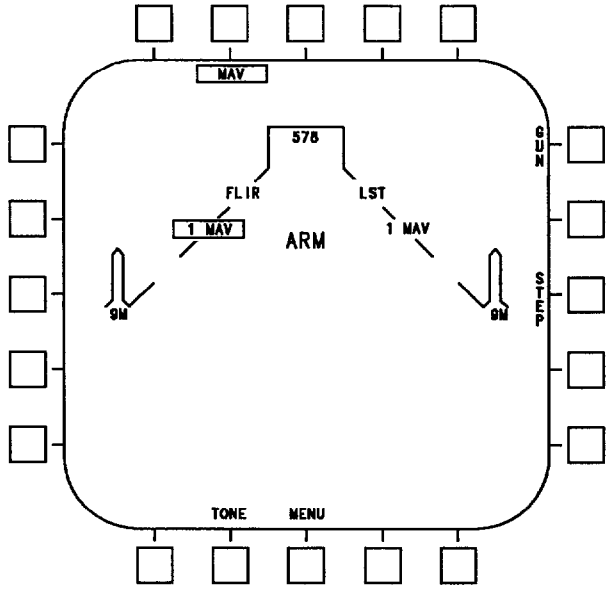
27. **Channel A/B Select.** Left and right DDI channel select relays A1K6 and A1K7 are used to switch channels A/B outputs to the DDI. The video command left and video command right are used to switch the relays. These signals are sent to the armament computer from the MC system.

28. **Video Amplifiers.** Video outputs from the store switching relays are sent to channels A and B high mode rejection and video amplifier circuits. The high mode rejection circuit removes the noise from the video and sends the output to the video amplifier.

29. The line driver matches the armament computer to the 95 ohm impedance line to the DDI. The output signal is monitored as a function of BIT.



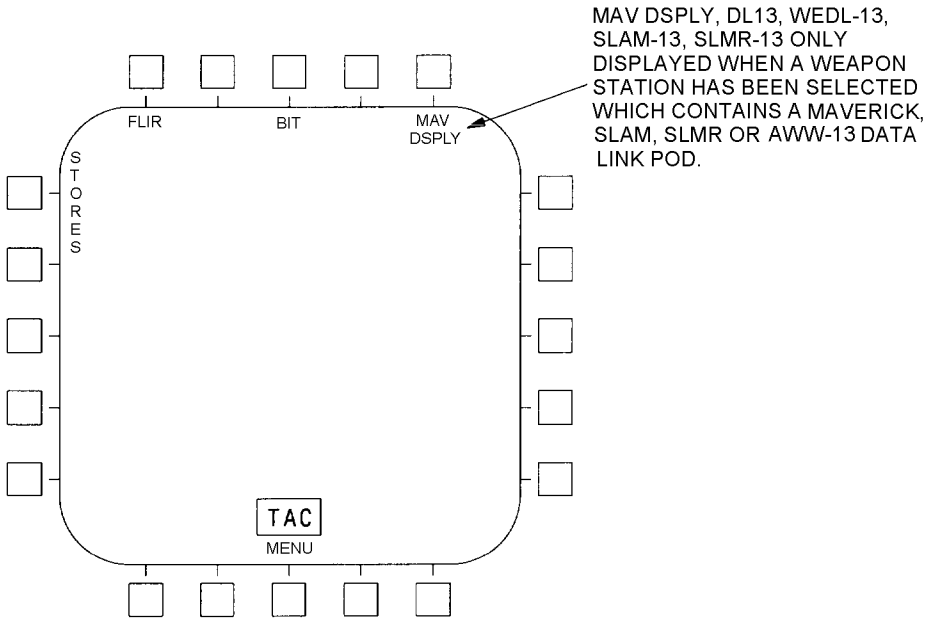
1 VIDEO SELECT FROM MENU DISPLAY



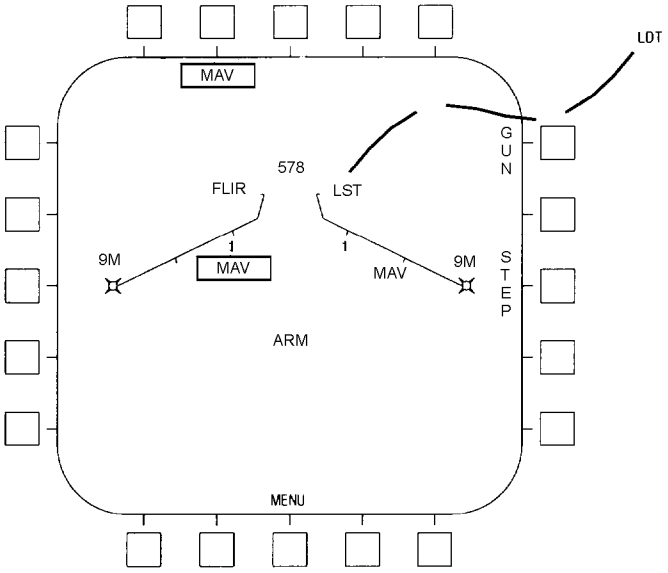
1 WEAPON VIDEO SELECT FROM STORES DISPLAY

0400101

Figure 1. Video Select Displays (Sheet 1)



[2] VIDEO SELECT FROM MENU DISPLAY



[2] WEAPON VIDEO SELECT FROM STORES DISPLAY

LEGEND

[1] 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

[2] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

04000102

Figure 1. Video Select Displays (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - VIDEO SWITCHING SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

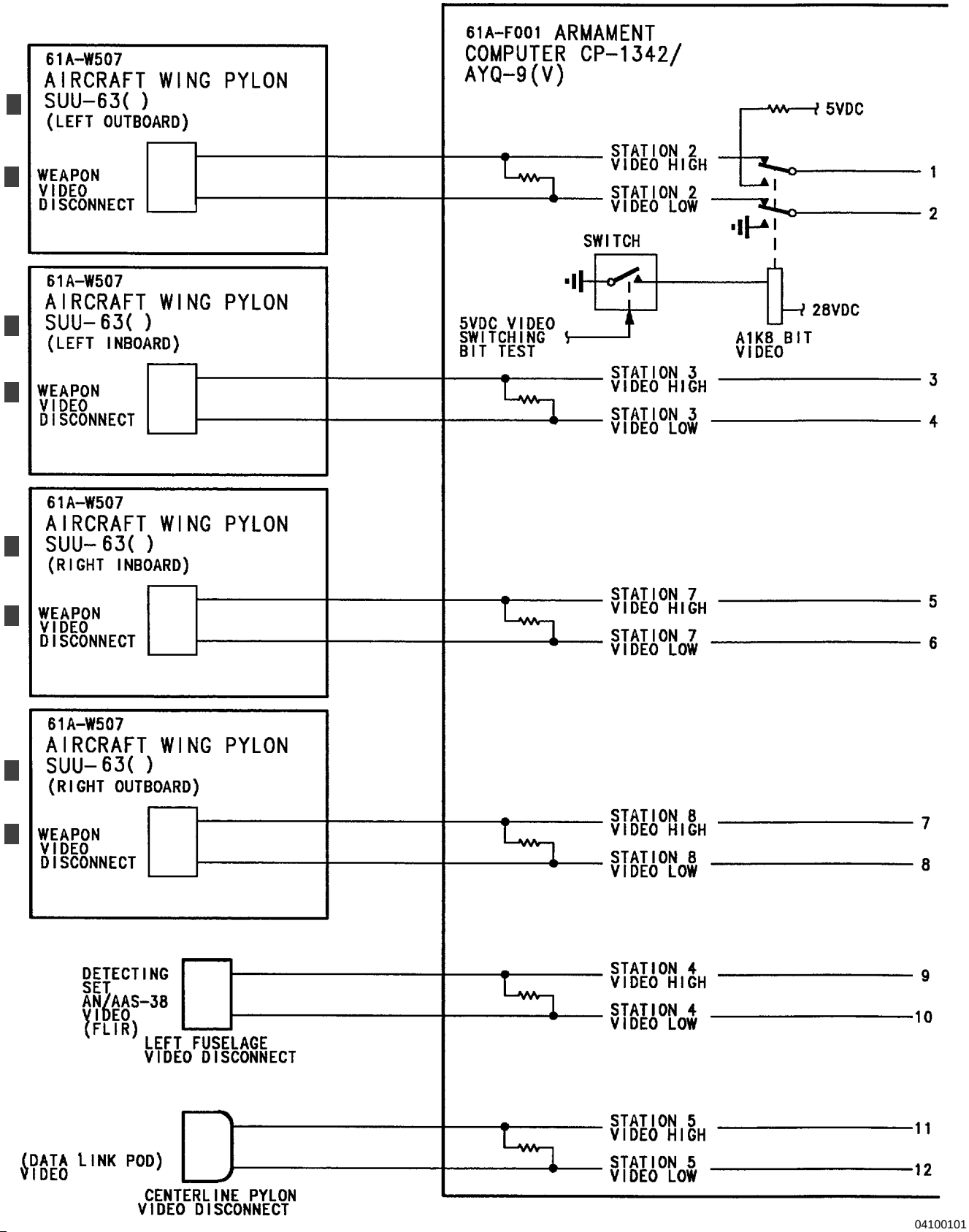
Subject	Page No.
Introduction	1
Video Switching Simplified Schematic, Figure 1 (F/A-18A BEFORE AFC 253 OR AFC 292, AND F/A-18B)	2
Video Switching Simplified Schematic, Figure 2 (F/A-18A AFTER AFC 253 OR AFC 292)	6

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

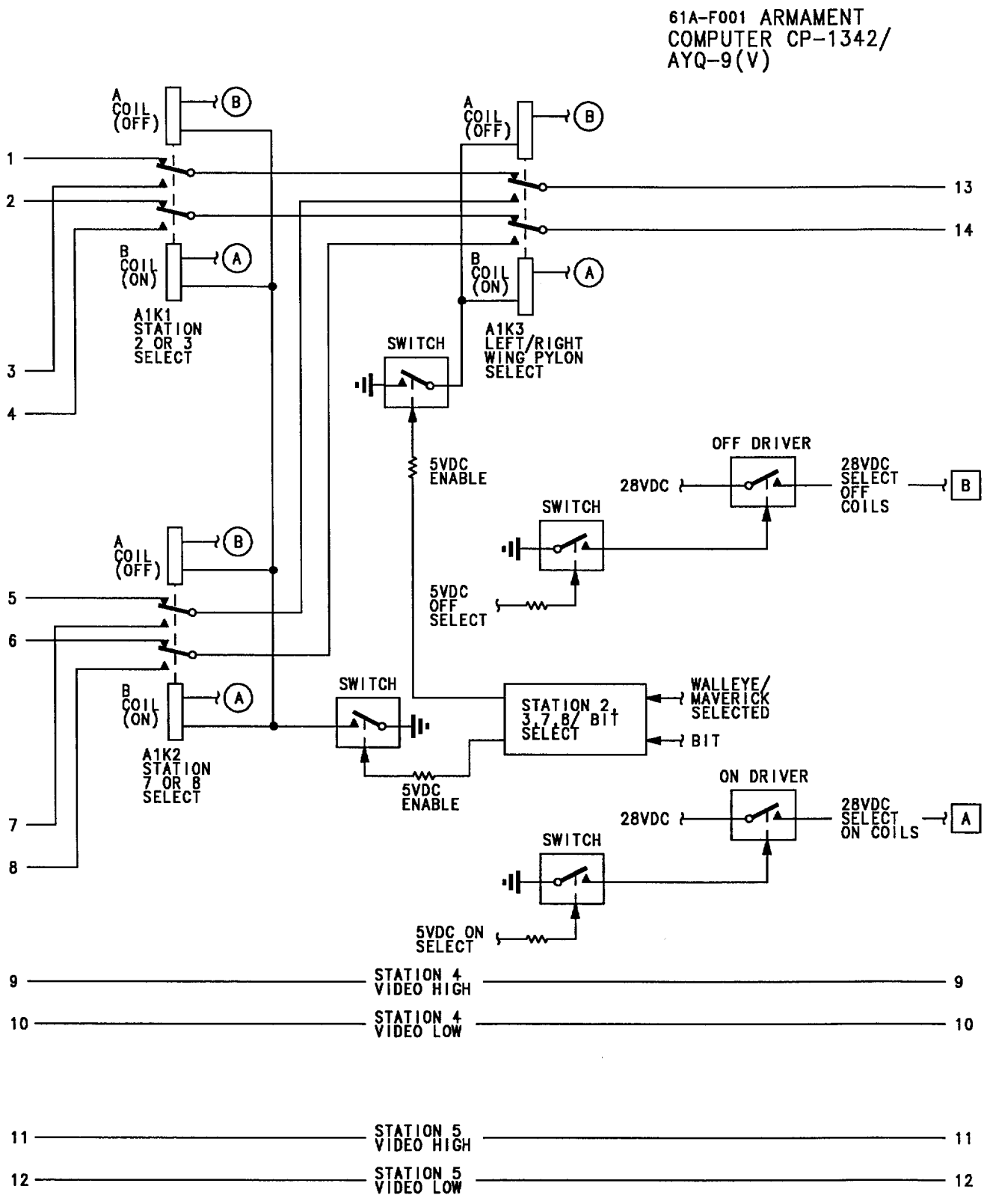
1. INTRODUCTION.

2. The schematic in this work package is provided to support the data in WP040 00.



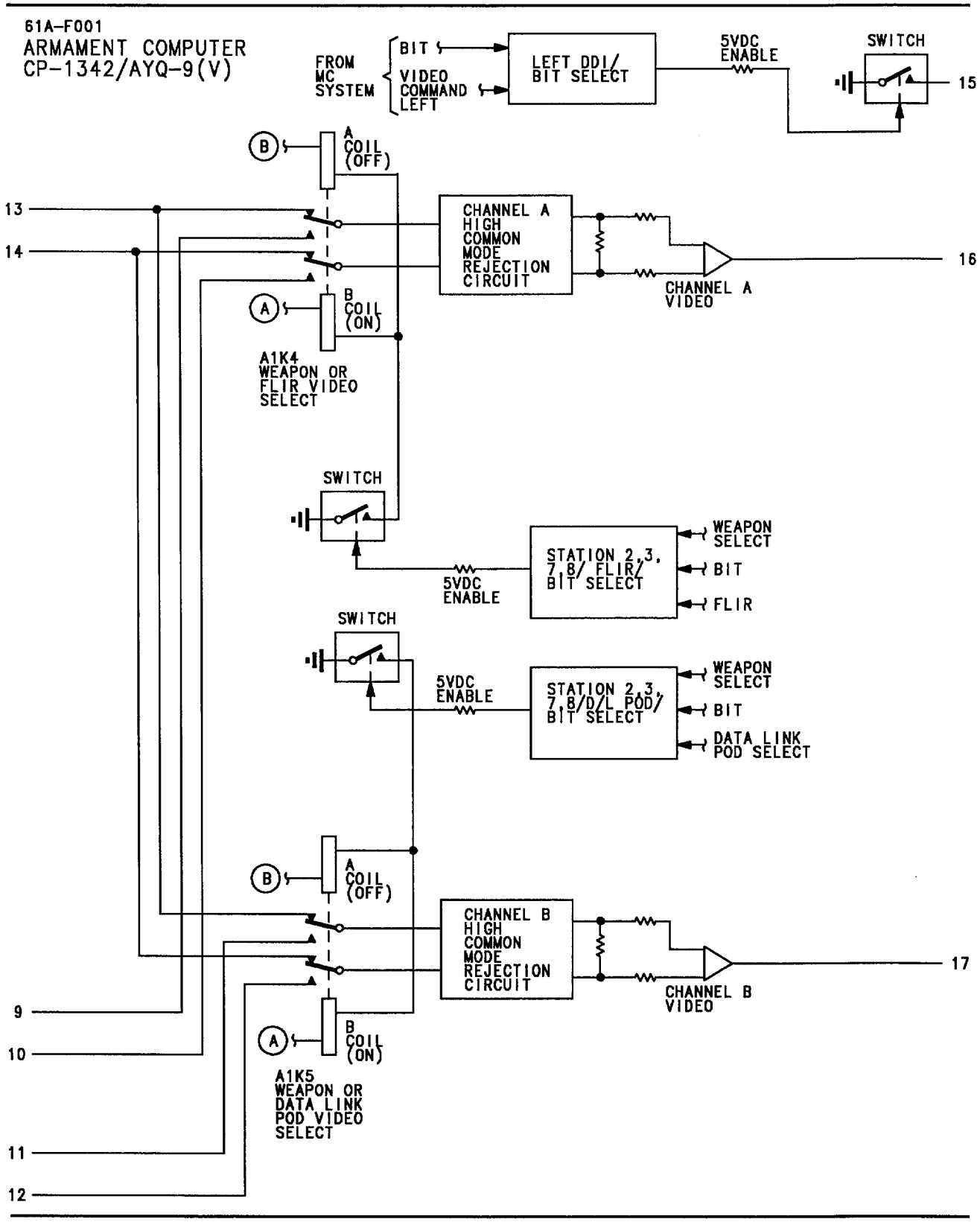
04100101

Figure 1. Video Switching Simplified Schematic (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292) (Sheet 1)



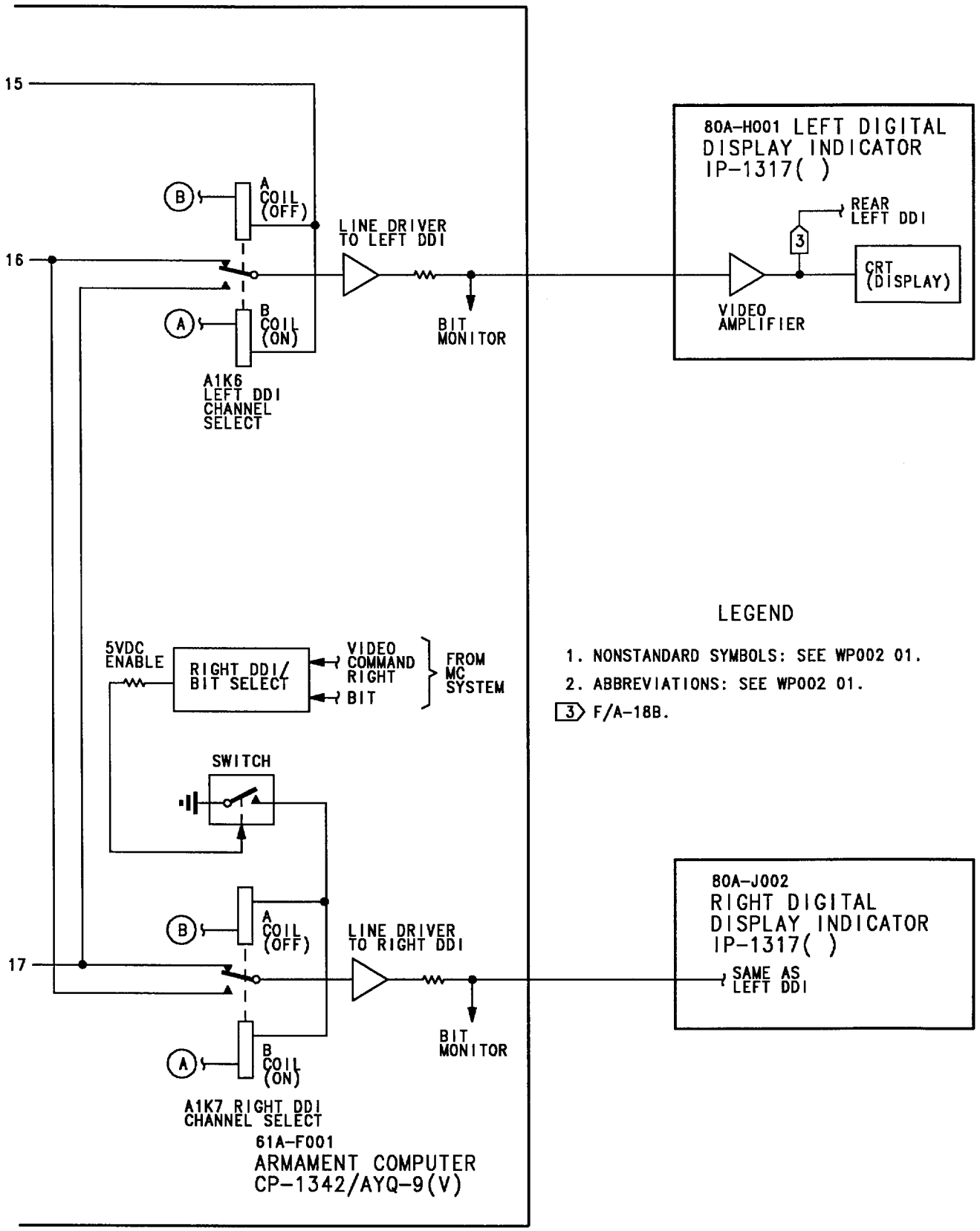
04100102

Figure 1. Video Switching Simplified Schematic (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292) (Sheet 2)



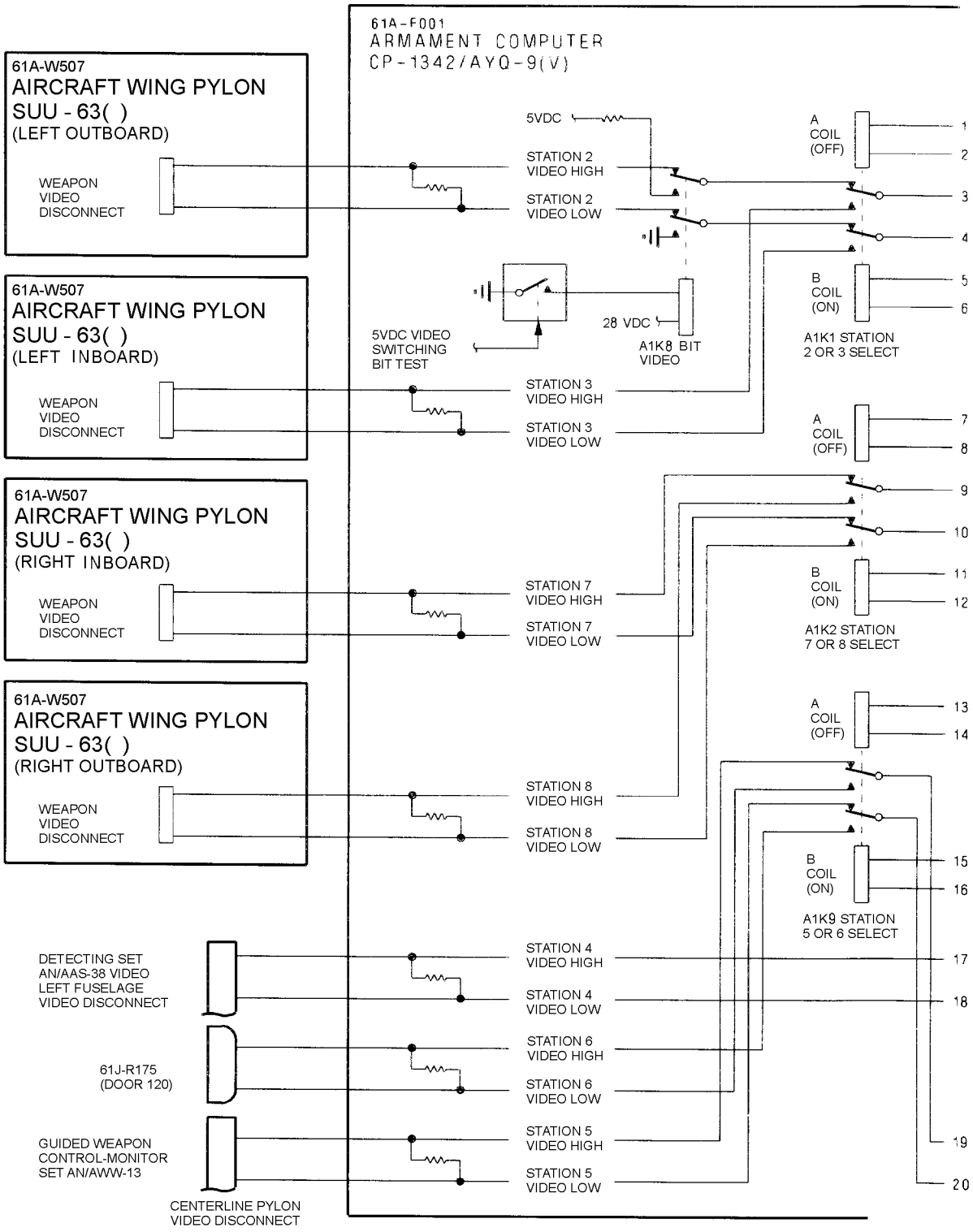
04100103

Figure 1. Video Switching Simplified Schematic (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292) (Sheet 3)



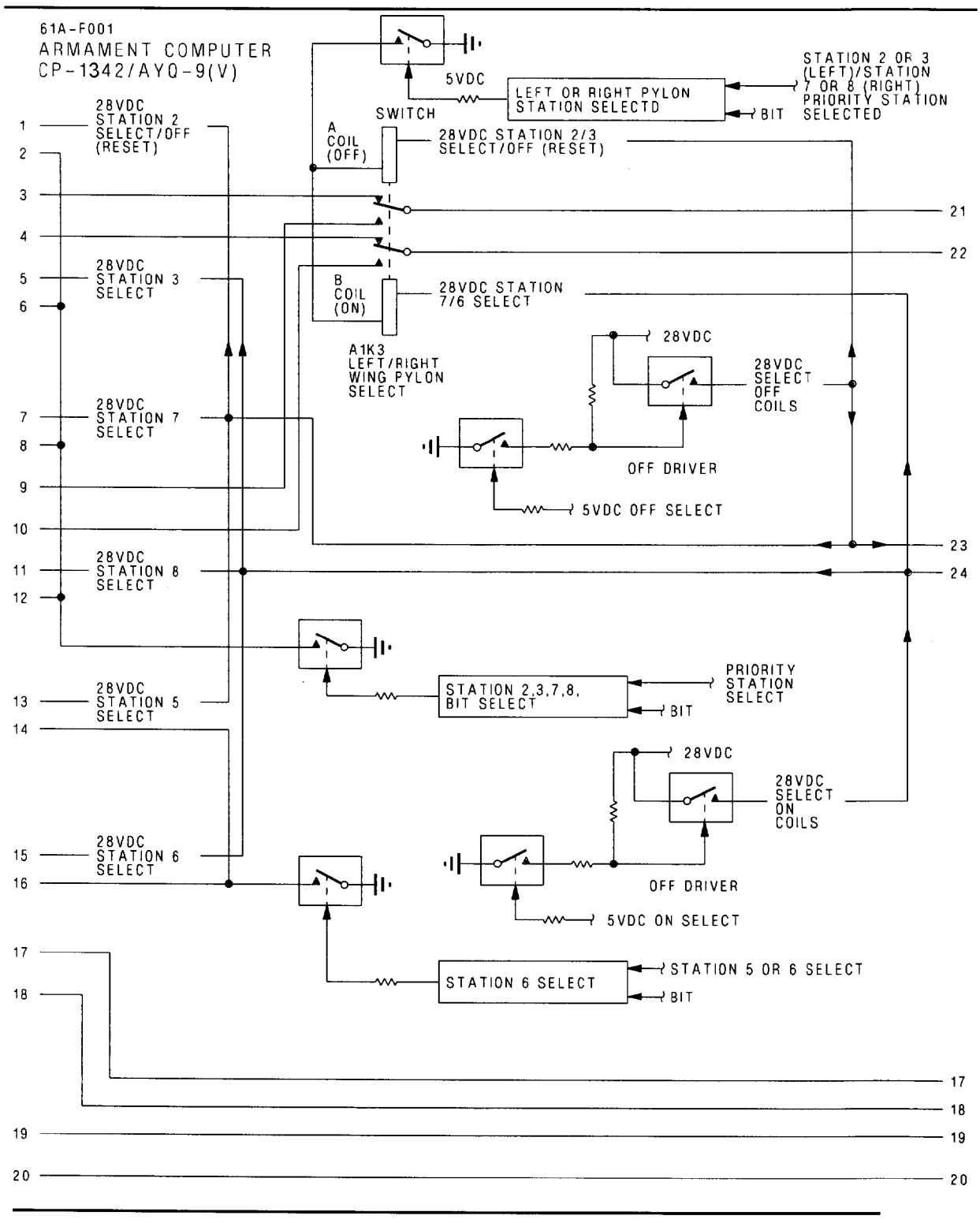
04100104

Figure 1. Video Switching Simplified Schematic (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292) (Sheet 4)



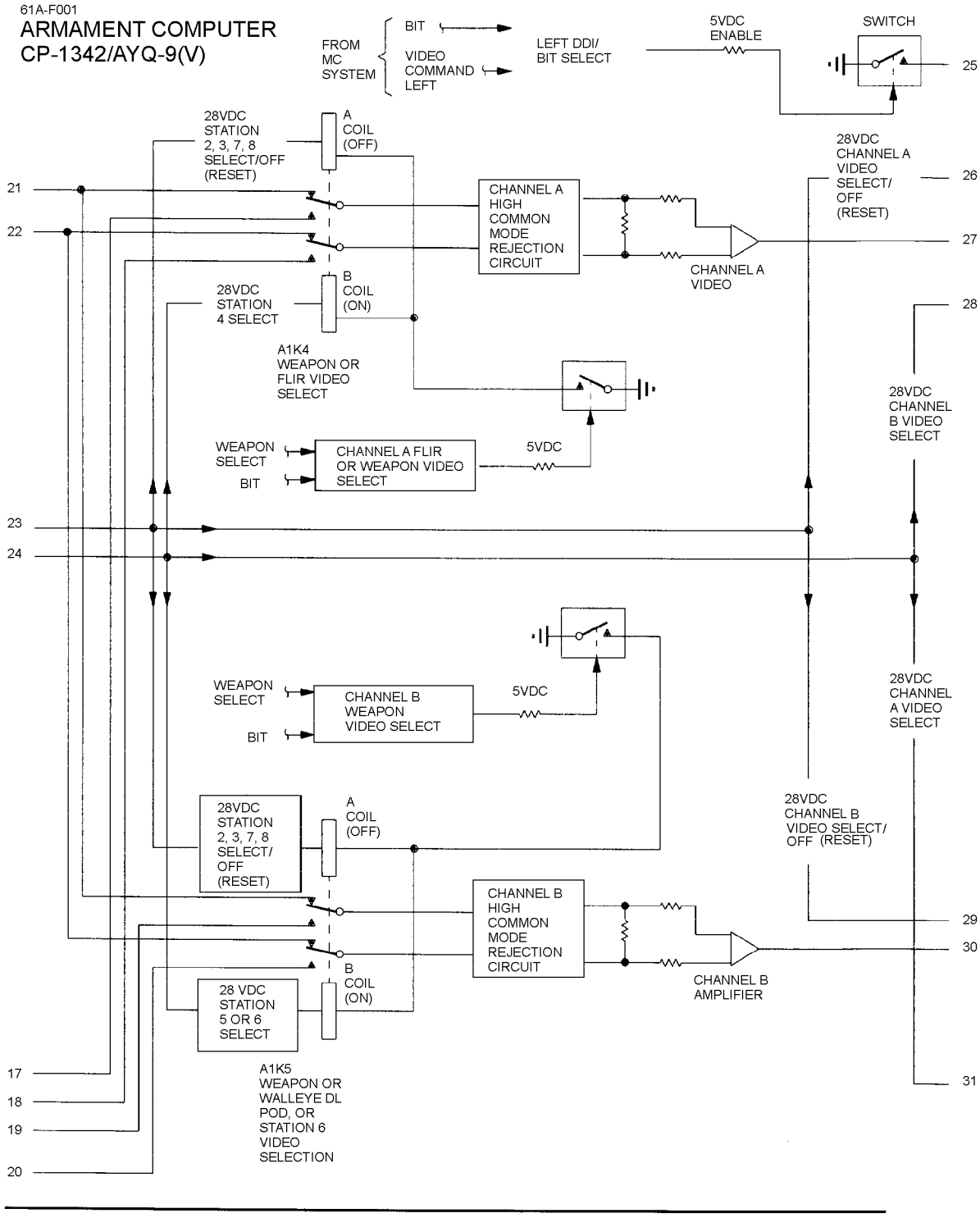
04100201

Figure 2. Video Switching Simplified Schematic (161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292) (Sheet 1)



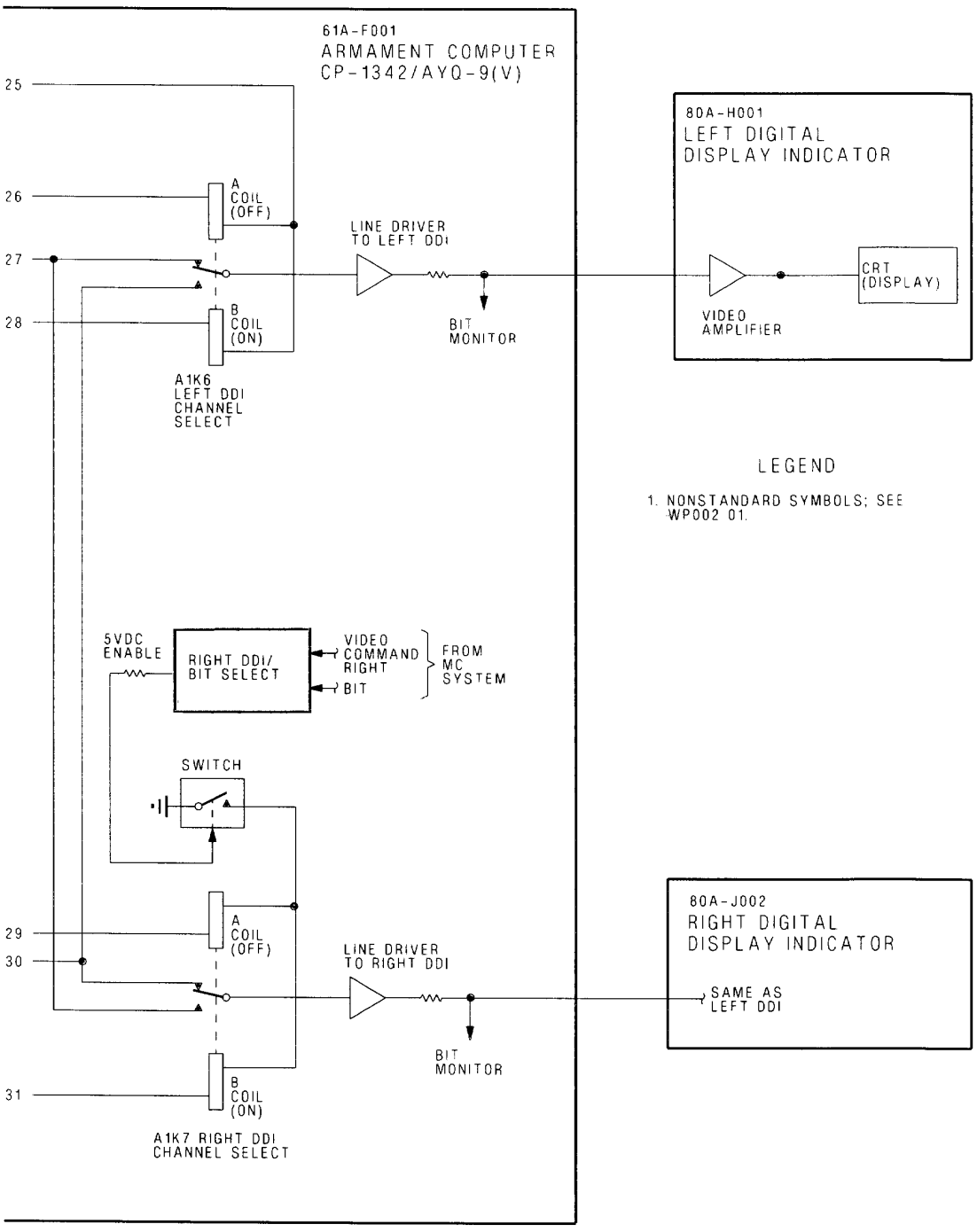
04100202

Figure 2. Video Switching Simplified Schematic (161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292) (Sheet 2)



04100203

Figure 2. Video Switching Simplified Schematic (161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292) (Sheet 3)



04100204

Figure 2. Video Switching Simplified Schematic (161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292) (Sheet 4)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - SENSOR CONTROL SWITCH AND THROTTLE DESIGNATOR CONTROL (TDC) ASSIGNMENT

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Sensor Control Switch and Throttle Designator Control (TDC) Assignment
Simplified Schematic WP041 02
Data Link System . . . . . A1-F18AC-630-110(C)
Vector (VEC) Mode Sequence of Operation WP027 00
Radar System A1-F18AC-742-100
Radar System Target Acquisition Operation WP013 00
Laser Detector Tracker System A1-F18AC-743-100
Acquisition and Track Operation WP010 00
Forward Looking Infrared System A1-F18AC-744-100
Mode Selection and Control Operation WP012 00

Alphabetical Index

Subject	Page No.
Armament Computer Functions	3
Introduction	2
Mission Computer System Functions	3
OAP/Target Designation	5
Radar Functions	3
Sensor Control Switch and Throttle Designator Control (TDC) Assignment Operation	2
Sensor Control Switch Functions	2
Target Designation, Figure 1	8
TDC Functions	3
TDC Functions, Table 1	3
Undesignation	7

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) sensor control switch and throttle designator control (TDC) assignment operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP041 02 for the simplified sensor control switch and throttle designator control assignment schematic. Detailed operation is shown in the sensor control switch and throttle designator control (TDC) assignment schematic (A1-F18AC-740-500, WP025 00).

4. Figure 1 shows displays related to TDC operation and target designation.

5. Refer to WP014 00 for component locations.

6. SENSOR CONTROL SWITCH AND THROTTLE DESIGNATOR CONTROL (TDC) ASSIGNMENT OPERATION.

7. The sensor control switch assigns the TDC to a weapon or sensor. The TDC controls the functions listed for the weapon or sensor. Refer to table 1.

8. The sensor control switch and TDC assignment operation is provided as listed below:

a. sensor control switch functions

b. radar functions

c. armament computer functions

d. mission computer system functions

e. TDC functions

f. OAP/target designation

9. **SENSOR CONTROL SWITCH FUNCTIONS.** The sensor control switch is a 4-position, momentary contact, center off, switch. The sensor control switch is located on the aircraft controller grip assembly.

10. In the air to air (A/A), air to ground (A/G) and navigation (NAV) aircraft master modes, the sensor control switch has different functions. On F/A-18B, the rear sensor control switch functions are the same.

11. **A/A.** In A/A master mode, the sensor control switch is assigned to the radar for mode selection. Mode selection signals are also sent to the Armament Computer CP-1342/AYQ-9(V) (armament computer).

12. **A/G And/Or NAV.** In A/G and/or NAV aircraft master mode, the sensor control switch assigns the TDC to the sensor or weapon displayed. Operation is provided as listed below:

a. forward position

b. left position

c. right position

d. aft position

13. Forward Position. The forward position assigns the TDC to the head-up display (HUD). This enables selection and slewing of the target designator (TD) symbol for the sensor displayed on the HUD. It also commands the laser detector tracker (LDT) system to the HUD scan pattern. The radar is commanded to the A/G ranging mode if a conventional bomb, rocket or gun mode is selected and the radar is not tracking.

14. Left Position. The left position assigns the TDC to the weapon or sensor shown on the Left Digital Display Indicator IP-1317( ) (LDDI). The TD symbol assignment depends on the LDDI display. The radar, forward looking infrared (FLIR) system, LDT, maverick or advanced data link pod (AFTER AFC 253 OR 292) is normally displayed on the LDDI. The TDC

may be assigned to the HUD or the Horizontal Indicator IP-1350/A (HI) displays when selected for display on the LDDI.

15. When menu is used to change the display on the LDDI, the TDC will remain assigned to the sensor or weapon rather than the LDDI. Reselection of the LDDI with the sensor control switch is required to assign TDC to the sensor or weapon now displayed.

16. Right Position. The right position assigns the TDC to the weapon or sensor shown on the Right Digital Display Indicator IP-1317( ) (RDDI). Operation is the same as the LDDI.

17. Aft Position. The aft position assigns the TDC to the HI, horizontal situation indicator (HSI) display. The TDC can do overfly and offset aimpoint designations. After designation, the TDC can be assigned to the HI MAP display by pressing the HI slew pushbutton. The TDC can then be used for map slewing.

18. **RADAR FUNCTIONS.** The sensor control switch controls radar acquisition modes when A/A aircraft master mode is selected. ON 162394 THRU 163175 BEFORE F/A-18 AFC 292, sensor control switch signals are sent to the Armament Computer and the radar Computer-Power Supply CP-1325/APG-65. ON 162394 THRU 163175 AFTER F/A-18 AFC 292, sensor control switch signals are sent to the Armament Computer and the Radar Data Processor CP-2062/APG-73. The signal that is sent to the armament computer is then sent to the Digital Data Computer No. 2 (mission computer). The signal is used to initialize displays for the A/A radar acquisition mode selected. For information about radar mode switching, refer to A1-F18AC-742-100, WP013 00.

19. **ARMAMENT COMPUTER FUNCTIONS.** The armament computer receives inputs from the sensor control switch/aircraft master mode logic/weapon select logic. The armament computer outputs sensor control switch select signals, aircraft master mode, and weapon select data. These signals are used by the mission computer system.

20. **MISSION COMPUTER SYSTEM FUNCTIONS.** The mission computer system receives inputs from the armament computer, LDT system, FLIR system, radar system, or multipurpose display group to compute TDC assignment and control functions.

21. **TDC FUNCTIONS.** The TDC is a two-axis positioning device with a center, momentary pushbutton switch. The TDC is located on the right throttle grip. On the F/A-18B, the rear TDC functions are the same. Refer to Table 1 for TDC switch normal/pressed/released functions for the aircraft master modes and sensor conditions selected.

Table 1. TDC Functions

Master Mode	Sensor		TDC		
	Selected	Mode/ Condition	Normal	Pressed	Released
Air to Air	RADAR	RWS VS TWS	HOTAS Cursor Slew	HOTAS Cursor Slew	Command Acquisition/ Return to Search
Air to Ground/	HUD	-	-	TD Call Up and Slew	Designate/ Redesignate
Navigation	RADAR	MAP, GMT, Sea-Track Not Enabled	HOTAS Cursor Slew	Designate Cursor Call Up and Slew	Designate/ Redesignate
		MAP, GMT, SEA-Track Enabled	HOTAS Curser Slew	Designate Cursor Call Up and Slew	Command Acquisition

Table 1. TDC Functions (Continued)

Master Mode	Sensor		TDC		
	Selected	Mode/ Condition	Normal	Pressed	Released
		MAP-EXP1 or EXP2 Option Selected	EXP1-EXP2 Outline Slew	EXP1 or EXP2 Outline Slew	Command EXP1 or EXP2 Mode
		EXP1-EXP2 Option NOT Selected	HOTAS Cursor Slew	Designate Cursor Call Up and Slew	Designate/ Redesignate
		EXP1-EXP2 Option Selected	EXP2 Outline Slew	EXP2 Outline Slew	Command EXP2 Mode
		EXP2	HOTAS Cursor Slew	Designate Cursor Call Up and Slew	Designate/ Redesignate
	FLIR	Track Not Enabled	Scene Slew	Designate Reticle Call Up and Scene Slew	Designate/ Redesignate (Scene Hold)
		Track Enabled	Scene Slew	Scene Slew/Designate Cursor Call Up and Slew	Designate and Command ACQ/Redesignate While Track
	LDT	Wide Scan	Scan Center Slew	Scan Center Slew	-
		Track	-	HUD TD Call Up and Slew	Accept Track Accept Track Redesignate While Track
	Advanced-Data Link Pod (AFTER AFC 253 OR 292)	-	-	Guidance Head Slew	Command Lock on
	Maverick	-	-	Guidance Head Slew	-
	HI	Undesignated	-	-	Overfly Designation
		OAP Designated	-	-	Offset Entry
	HI/MAP	Slew Selected	Map Slew	Map Slew	-

Table 1. TDC Functions (Continued)

Master Mode	Sensor		TDC		
	Selected	Mode/ Condition	Normal	Pressed	Released
NOTES					
1. Abbreviations: See WP002 01.					

22. **OAP/TARGET DESIGNATION.** Designation of an offset aimpoint (OAP) or target is required to identify the location of OAP or target to the weapon system. The weapon system then acquires and maintains OAP or target position for weapon delivery computations.

23. Designation enables the MC system to compute in-range solution for Maverick weapon delivery. Designation is also used for bomb and weapon release computations. Designation is required for modes and weapons listed.

a. auto and flight director (FD) mode, bombs and mines

b. pre-briefed and TOO mode HARM

24. The HUD target designator (TD) symbol is displayed when a target or OAP is designated. The TD symbol is displayed at the computed line-of-sight (LOS) to the designated point, when the point lies within the HUD field-of-view (FOV). If the designated point is outside the HUD FOV but within the forward hemisphere of the aircraft, the TD is displayed at the HUD FOV limit on a radial to the designated point. The TD symbol flashes to indicate the limit condition. TD is blanked from the HUD when the bearing to the designated point exceeds 90°.

25. A diamond-shaped symbol showing the location of the designated point is also displayed on the HI, when the designated point lies within the selected map radius.

26. When an aimpoint, OAP, or target is designated, the MC system slaves the radar, FLIR, and LDT to the aimpoint LOS. The MC system commands the radar to air-to-ground ranging (AGR) for HUD, FLIR and LDT designations.

27. The MC system commands the LDT to wide scan pattern for all designations, except LDT designations. The MC system removes the CAGE options from FLIR and LDT displays. It also removes the RSET option from radar displays, MAP, EXP 1, EXP 2, EXP 3, SEA or GMT mode. The navigation designation and data link vector designation options are also removed from their respective displays when a designation of any type is performed.

28. When a designation is done, the MC system determines if the designated aimpoint is an OAP or target. If the aimpoint is an OAP, complete attack symbology is not displayed in the automatic release modes. The MC system does not allow weapon release on an OAP.

29. To complete the target designation when an OAP is designated, stored offset data must be entered into the MC system computations. The MC system automatically enters stored offset data when an overfly designation is done over an OAP. For all other OAP designations, offset data is entered by pressing the offset O/S pushbutton on the HI or by pressing and releasing the TDC while it is assigned to the HI.

30. Designation using any of the designation methods may be done in either NAV or A/G master mode. When designation is done in NAV or A/G master mode, designation status is retained when the other mode is selected. Designation is retained when A/A master mode is selected so redesignation is not required when NAV or A/G master mode is reselected.

31. Designation methods are listed below:

a. navigation designation

b. OAP overfly designation

c. automatic position update/designation

d. HUD reticle designation

e. HUD TD designation

f. radar designation

g. FLIR designation

h. LDT designation

i. data link vector mode designation

32. **Navigation Designation.** A navigation designation of the waypoint/OAP selected on the HI is done by pressing NAVDSG option pushbutton. This action designates the aimpoint based upon navigation coordinates previously entered. The navigation designation is used when a planned target or OAP cannot be located either visually or on the sensor displays.

33. Navigation designation may also be used for target finding purposes, since the MC system slaves all operating sensors to the computed LOS to the selected destination. A navigation designation cannot be done if a target or OAP is already designated.

34. **OAP Overfly Designation.** An OAP overfly designation is used when target data is stored as an offset from an OAP and it is desired to overfly the OAP before proceeding to the targets. It can also be used to designate an overfly point as a target of opportunity.

35. An overfly designation is done by pressing and releasing the TDC while it is assigned to the HI. When TDC is pressed, the MC system assumes that the aircraft is over the selected waypoint/OAP, and the aircraft present position at that time is designated as the aimpoint position.

36. If an OAP is selected on the HI, previously stored offset data is added to the aircraft position to complete target designation. An overfly designation cannot be done if a target or an OAP is already designated or if AUTO update has been selected.

37. **Automatic Position Update/Designation.** Automatic position (AUTO) update/designation provides a means of updating aircraft present position when overflying a waypoint or OAP. AUTO option available on update page of HI display. Pressing AUTO pushbutton boxes AUTO and removes TCN, DSG, MAP and VEL options. The TDC must be assigned to the HI.

38. When the aircraft overflies the waypoint or OAP pressing the TDC automatically enters the waypoint or OAP navigation coordinates as aircraft present position. The previous designation, if any, is undesignated. For an OAP, the OAP is NAV designated and the offset is added to designate the target. For a waypoint, the next waypoint in sequence is NAV designated. Although AUTO update results in NAV designation, it may be done when already designated.

39. **HUD Reticle Designation.** The HUD reticle method of designation is used during AUTO mode, dive or dive-toss weapon deliveries. These deliveries are used against planned targets or targets-of-opportunity.

40. To designate using this method, the weapon system must be undesignated and the TDC assigned to the HUD. The MC system commands the radar to the AGR mode and slaves the radar to the HUD reticle LOS. The aircraft is maneuvered until the reticle is over the aimpoint and then the A/G weapon release switch is pressed and held. When the weapon release switch is pressed, the TD is immediately displayed at the reticle LOS, and the reticle is blanked from the display.

41. **HUD TD Designation.** The HUD TD method of designation is used when it is desired to designate aim point visually through the HUD.

42. To designate using this method, the weapon system must be undesignated and the TDC assigned to the HUD. When TDC is assigned to the HUD, the MC system commands the radar to the AGR mode and slaves it to the HUD TD LOS, if the TD is already displayed on the HUD. It is slaved to the reticle LOS, if a bomb, gun or rocket reticle is displayed. AGR is not commanded until TDC is pressed.

43. When TDC is pressed to action position, the MC system commands the TD symbol to be displayed on the HUD, if not already displayed. When TD is not already displayed, it is initially displayed at the location determined by the below priority logic:

a. at the LDT track point cue LOS

b. at the reticle LOS

c. at the velocity vector LOS or 7.5° down from the local horizontal, whichever is the steeper depression angle.

44. The MC system blanks the reticle, or continuously computed impact point (CCIP) cross, on the HUD when the TD symbol is displayed during AUTO and CCIP bomb mode.

45. The MC system provides positioning commands to the TD as TDC up/down and left/right forces are applied to position the TD symbol over the aimpoint. When the TDC is pressed, the MC system segments the TD symbol on the HUD. This is a cue that TD can be slewed. Designation of the aimpoint is completed when the TDC is released from the action position.

46. After designation, HUD TD designation may be updated in the no-action position of the TDC. Small corrections are allowed without pressing the TDC. The TD symbol remains segmented in no action slew. No action slew is disabled when TD symbol HUD limited.

47. While slewing, the designated point is continually updated using aircraft velocities to nav stabilize the

point. Nav stabilization acts as an aid in positioning the TD diamond over the aimpoint. Nav stabilization is especially noticeable at high depression angles where high upward slew rates are required.

48. The TD can be slewed at or above the horizon. This allows designation of targets on hills above the aircraft flight path. When the TD is slewed past 500,000 feet, continued back and forward force on the TDC slews the TD up and down at 500,000 feet until valid AGR ranging is received. Azimuth slewing operates normally at the 500,000 foot range. Target range is limited to 82.2 NM.

49. Valid AGR ranging is indicated by AGR in the HUD window where FLIR, LST and RDR appear. The Radar inhibits AGR in a band from 4° below the horizon to 0.5° above the horizon when the TD is slewed upward. When the TD is more than 0.5° above the horizon, it can be slewed down through the band without inhibiting AGR.

50. Nav stabilization is not provided during elevation slew at 500,000 feet. The TD diamond is stabilized at slewed position using elevation and bearing stabilization. If AGR becomes invalid, after designation above the horizon, slewing is at best available altitude above horizon. AGR HUD label indicates if slewing is being done with valid AGR or at last best available altitude elevation.

51. HUD TD slewing above horizon can be done from a Nav designation. The slewing is at waypoint/OAP/ offset elevation entered through the HSI DATA sublevel based on barometric altitude. Selecting radar altimeter allows slewing at the entered elevation as long as the elevation is higher than aircraft barometric altitude. Once the target is below aircraft barometric altitude the target is placed at radar altimeter ground level and normal slewing is enabled.

52. With barometric altitude source selected, slewing is at entered target elevation. Releasing TDC with target at less than 500,000 foot range sets the position based on NAV stabilization using INS velocities, not best available altitude.

53. **Radar Designation.** Refer to A1-F18AC-742-100, Operation - Target Acquisition WP013 00 for Navigation Stabilized Cursor Designation and Radar Track Designation.

54. **FLIR Designation.** Refer to A1-F18AC-744-100, Operation Mode Selection and Control WP012 00 for FLIR designation.

55. **LDT Designation.** Refer to A1-F18AC-743-100, Operation-Acquisition and Track WP010 00 for Mission Computer System Functions, Target Designation.

56. **Data Link Vector Mode Designation.** Refer to A1-F18AC-630-110/(C), Vector Mode Sequence of Operations, WP027 00 for Data Link Designation.

57. **UNDESIGNATION.** An OAP or target may be undesignated both manually and automatically.

58. The OAP or target may be undesignated by any of the below:

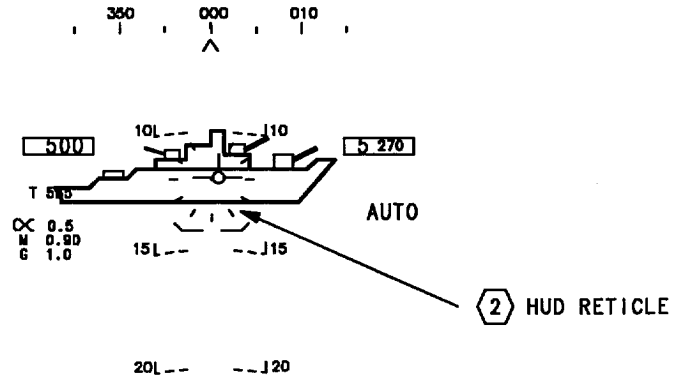
a. pressing the undesignate/nosewheel steer switch on the aircraft controller grip assembly

b. selecting another waypoint or OA number on the HI

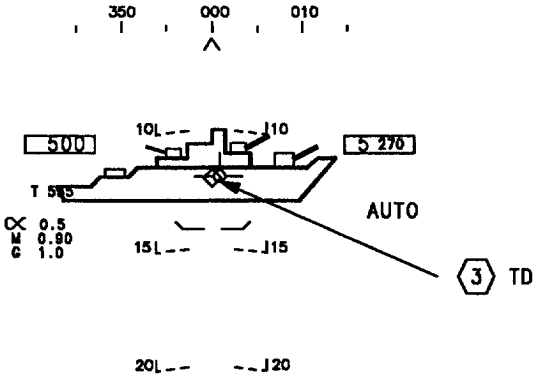
c. deselecting OAP or TGT steering on the HI.

59. When an aimpoint is undesignated, the radar, FLIR and LDT are no longer slaved to the aimpoint. If radar is tracking, it is commanded to return to the search mode from which track was established. It is commanded to AGR mode if a reticle, other than a guided - weapon reticle, is displayed on the HUD.

60. If FLIR is tracking, it is commanded to the pointed mode, and is commanded to unwind if rolled more than ±270°. The LDT cannot be commanded to stop tracking, except by turning it off.



AUTO MODE – UNDESIGNATED, IN DIVE

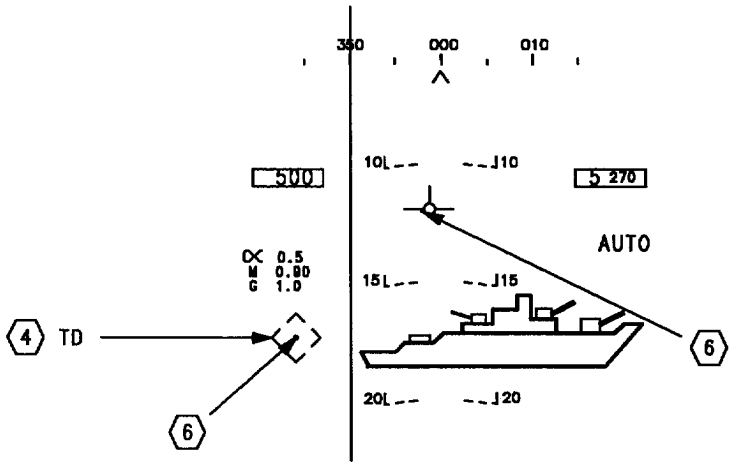


TARGET DESIGNATED

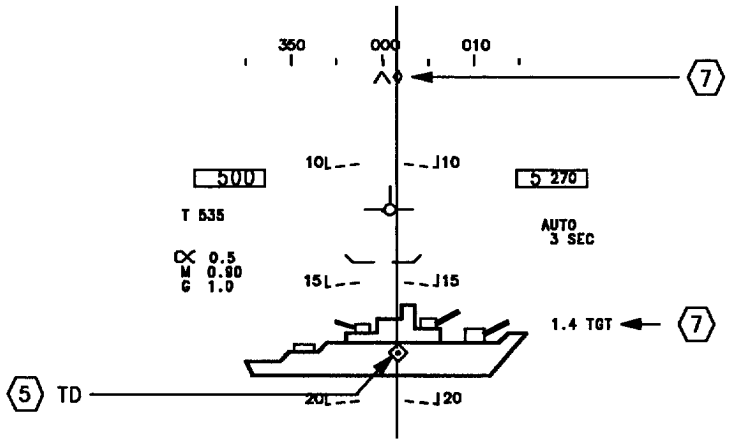
HUD RETICLE DESIGNATION

41010101

Figure 1. Target Designation (Sheet 1)



AUTO MODE DISPLAY – DURING DESIGNATION
(TDC PRESSED)

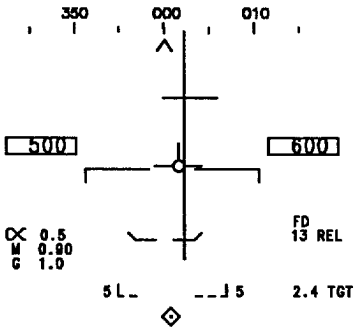


AUTO MODE – DESIGNATED

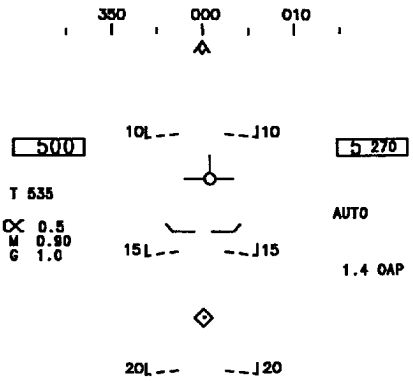
HUD TD DESIGNATION

41010102

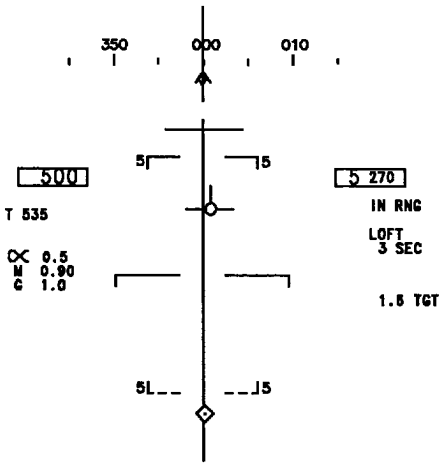
Figure 1. Target Designation (Sheet 2)



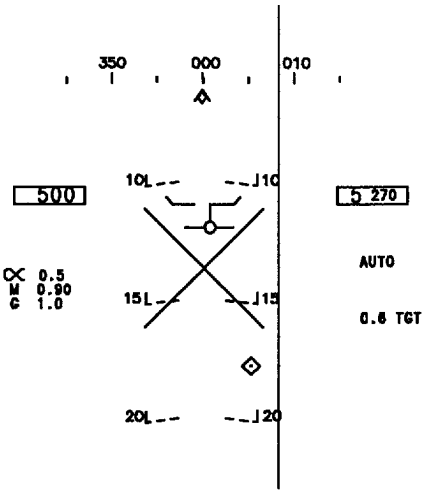
13 FD MODE–DESIGNATED FINAL COURSE



OAP DESIGNATED



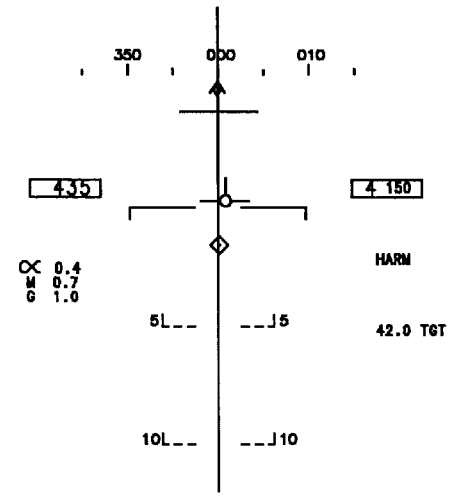
LOFT MODE – DESIGNATED



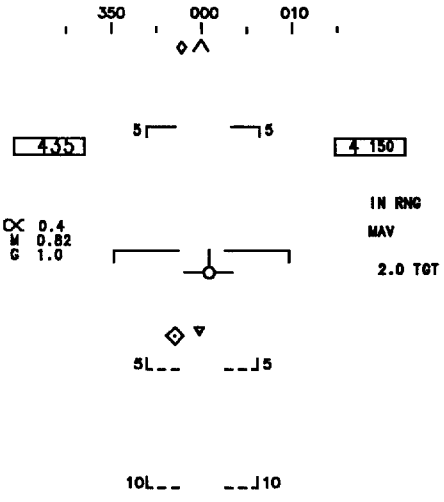
PULL – UP/BREAKAWAY "X" CONDITION – DESIGNATED

41010103

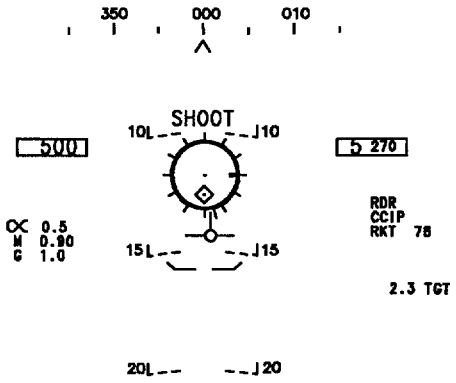
Figure 1. Target Designation (Sheet 3)



HARM PRE – BRIEFED (PB)
MODE – DESIGNATED



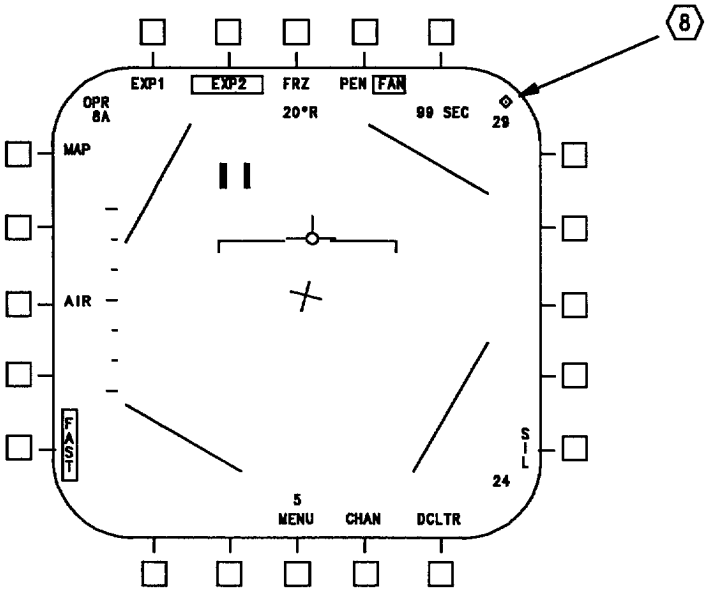
MAVERICK MODE – DESIGNATED



CCIP ROCKETS MODE – DESIGNATED

41010104

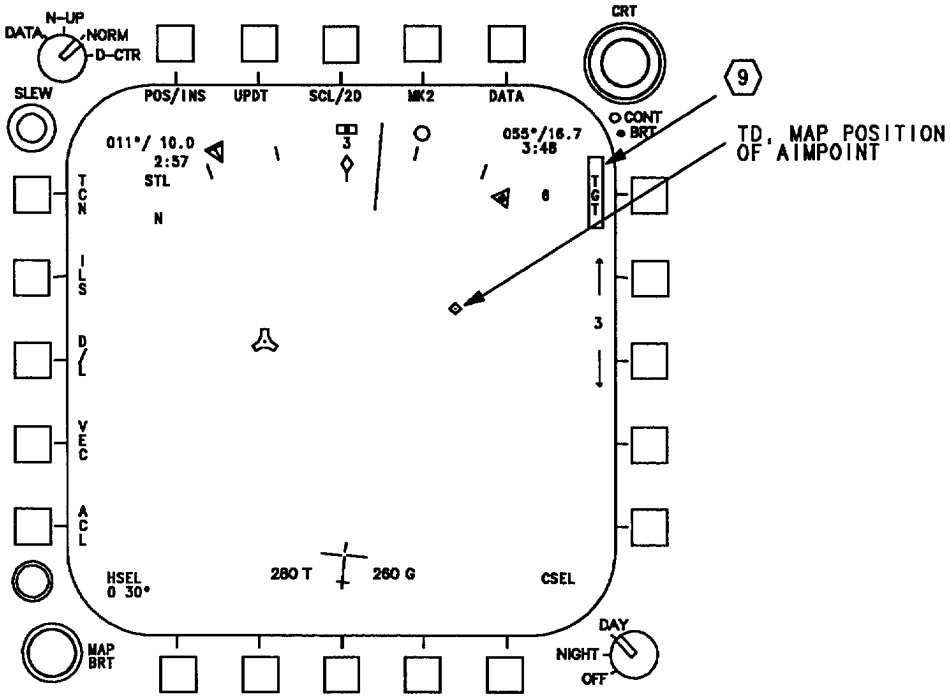
Figure 1. Target Designation (Sheet 4)



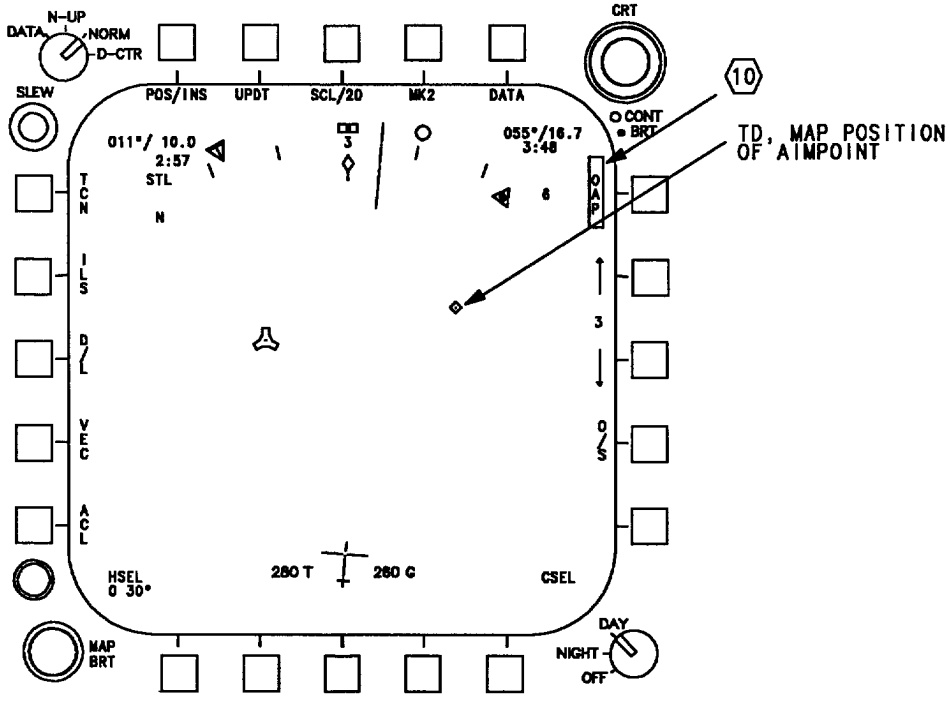
TDC/SENSOR ASSIGNMENT

41010105

Figure 1. Target Designation (Sheet 5)



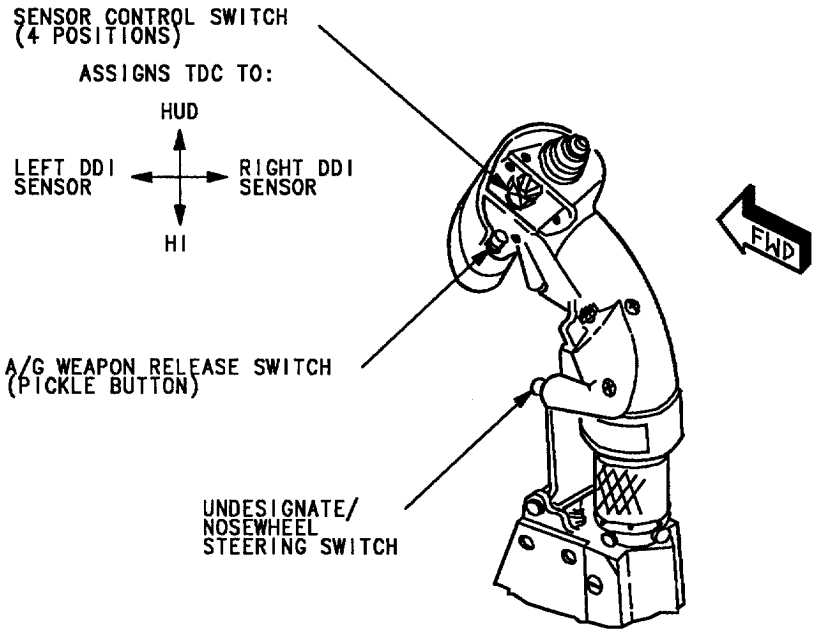
HI – TARGET DESIGNATED
(NAV AND A/G)



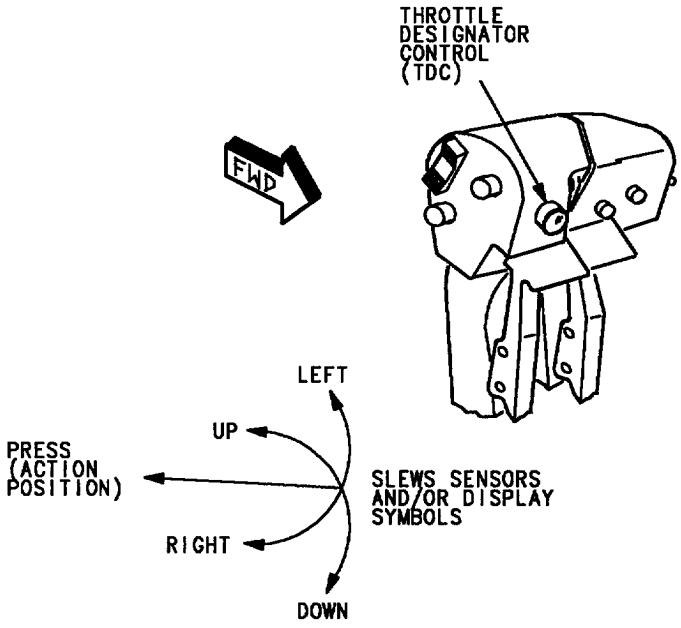
HI – OAP DESIGNATED
(NAV AND A/G)

41010106

Figure 1. Target Designation (Sheet 6)



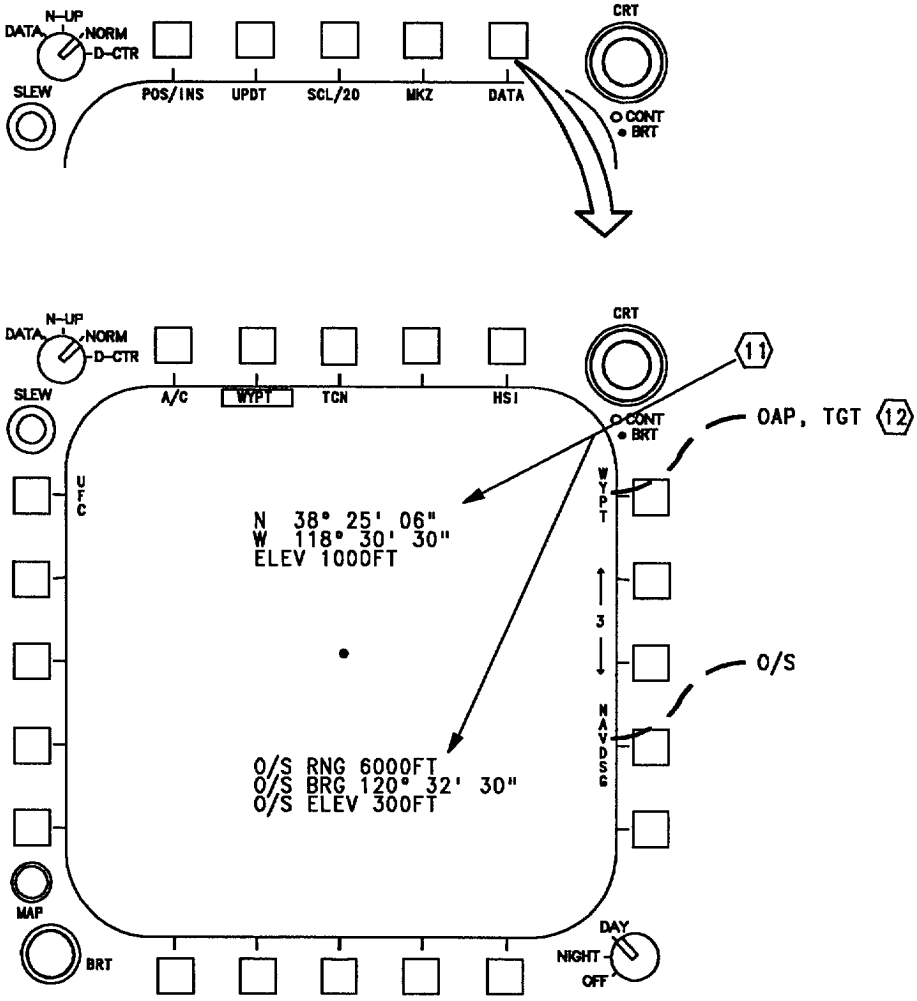
AIRCRAFT CONTROLLER GRIP ASSEMBLY



THROTTLE QUADRANT

41010107

Figure 1. Target Designation (Sheet 7)



41010108

Figure 1. Target Designation (Sheet 8)

LEGEND

1. NONSTANDARD SYMBOLS: SEE WP002 01.

(2) AIRCRAFT FLOWN TO POSITION HUD RETICLE ON TARGET.

(3) WHEN THE A/G WEAPON RELEASE SWITCH IS PRESSED, THE TARGET IS DESIGNATED AND THE TD SYMBOL REPLACES THE HUD RETICLE.

(4) TD SYMBOL IS SEGMENTED WHEN TDC IS PRESSED, SHOWN LARGER THEN ACTUAL, TD SYMBOL CAN BE SLEWED OVER TARGET WITH TDC.

(5) TD SYMBOL IS SOLID WHEN TDC IS RELEASED, TARGET DESIGNATED AND TD TRACKS TARGET.

(6) DOT IS PROVIDED IN CENTER OF TD SYMBOL AND VELOCITY VECTOR WHEN THE TDC IS ASSIGNED TO THE HUD.

(7) RANGE TO TARGET AND COMMAND HEADING DIAMOND PROVIDED AFTER TARGET DESIGNATION.

(8) TDC ASSIGNMENT INDICATOR, RADAR, FLIR, LDT.

(9) WHEN A TARGET IS DESIGNATED, THE WYPT OR OAP BUTTON LABEL IS REPLACED BY THE TGT LABEL, WHICH IS BOXED. AND STEERING TO THE TARGET POSITION RATHER THAN THE WAYPOINT POSITION.

(10) WHEN AN OFFSET AIM POINT IS DESIGNATED, THE OAP BUTTON LABEL IS BOXED, NAVDSG BUTTON LABEL IS REPLACED BY THE O/S (OFFSET) LABEL, AND THE STEERING IS TO THE DESIGNATED OAP POSITION.

(11) WAYPOINT/OAP-OFFSET DATA IS DISPLAYED AS SHOWN WHEN WYPT DATA IS SELECTED. DATA ENTERED ON EQUIPMENT CONTROL.

(12) WYPT SHOWN TO ENTER DATA FOR UP TO 10 WYPTS. OAP SHOWN WHEN WYPT HAS OFFSET (O/S) TGT SHOWN WHEN NAVDSG PUSHBUTTON PRESSED.

13 WITH ARMAMENT COMPUTER CP-1342/AYQ(V) CONFIG/IDENT 85A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).

Figure 1. Target Designation (Sheet 9)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - SENSOR CONTROL SWITCH AND THROTTLE DESIGNATOR CONTROL (TDC) ASSIGNMENT SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

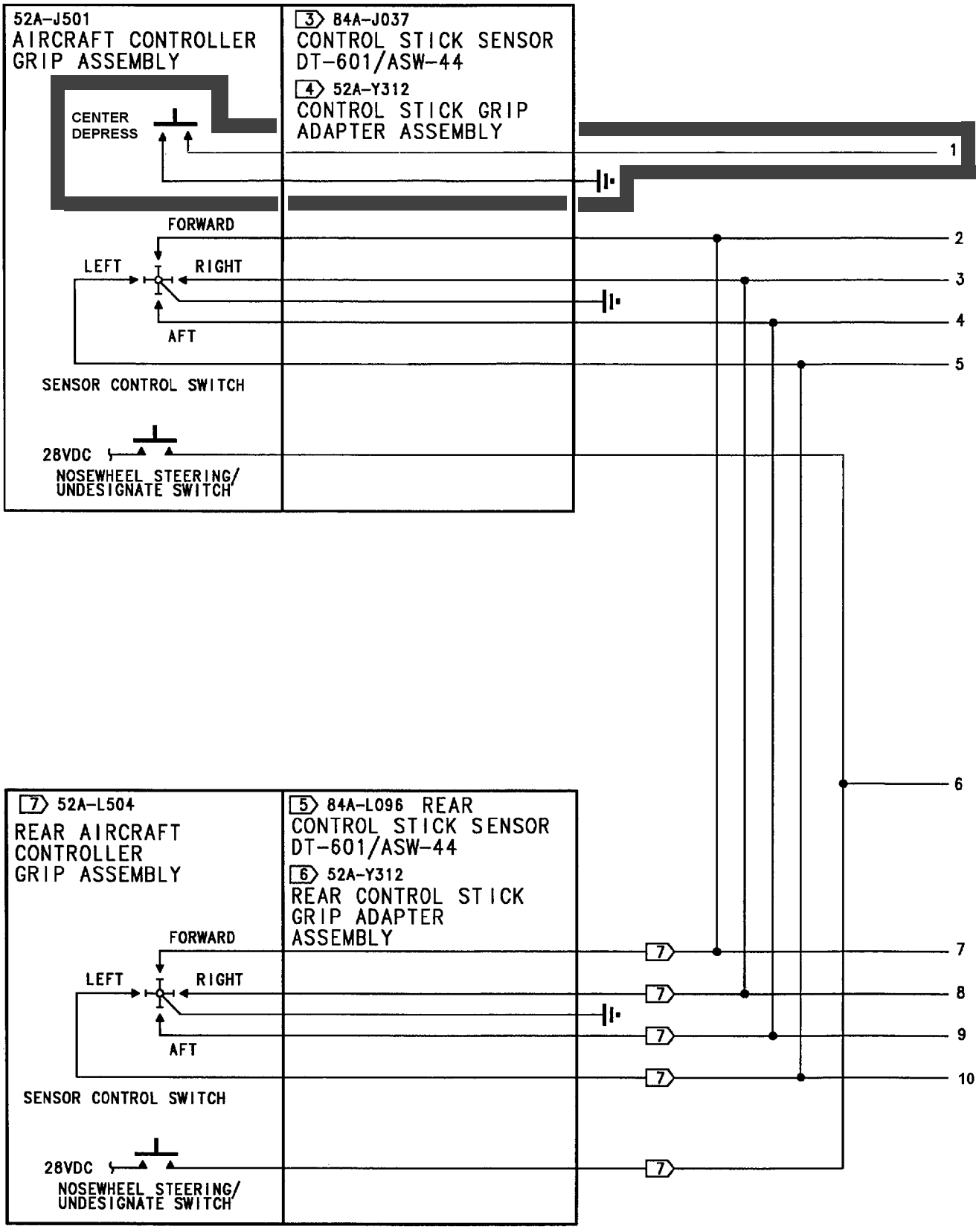
Subject	Page No.
Introduction	1
Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 27	-	Leading Edge Flap/Control Stick Changes (ECP MDA-F/A-18-00044)	15 Nov 86	ECP Coverage Only
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

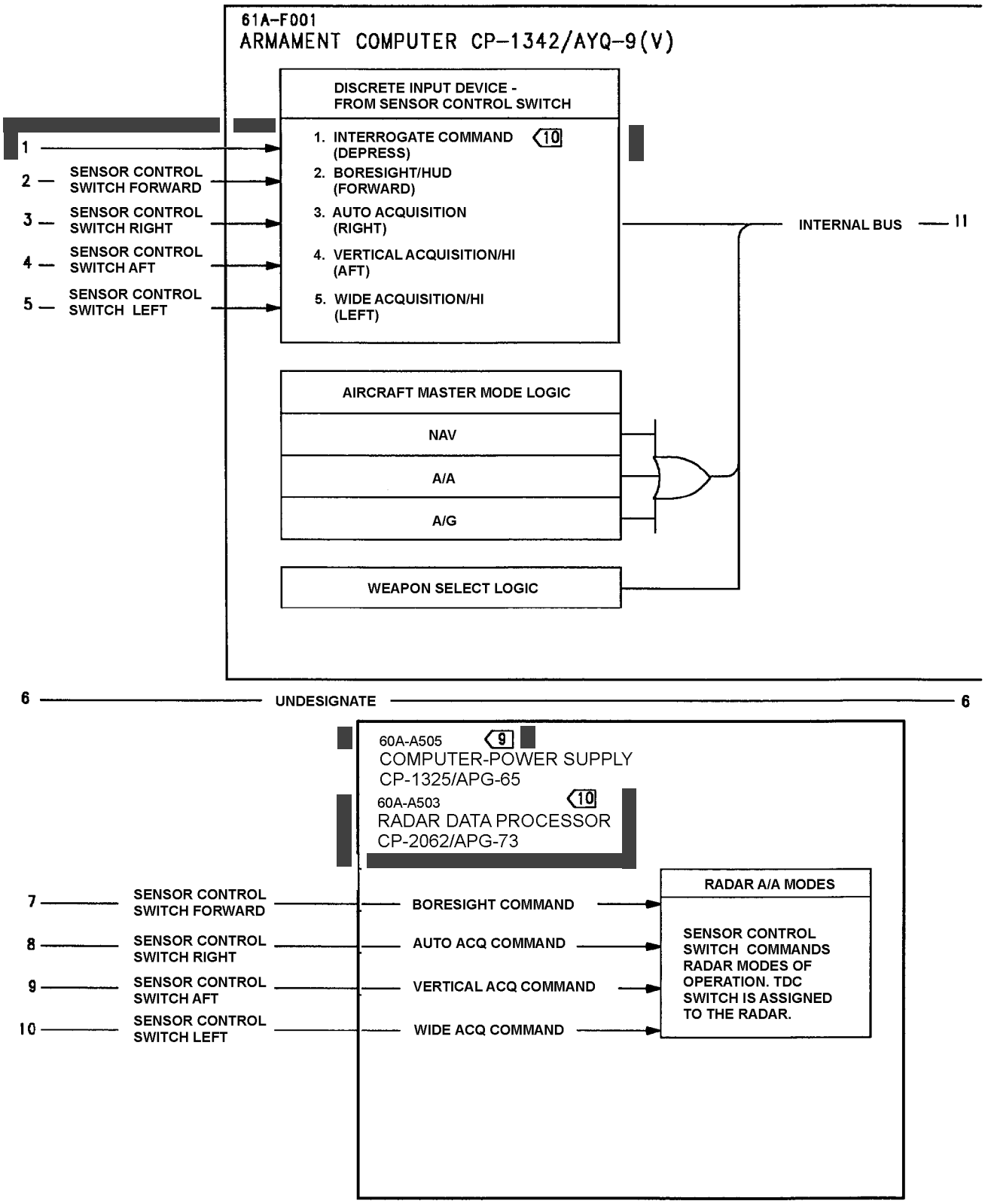
1. INTRODUCTION.

2. The schematic in this work package supports the data in WP041 01.



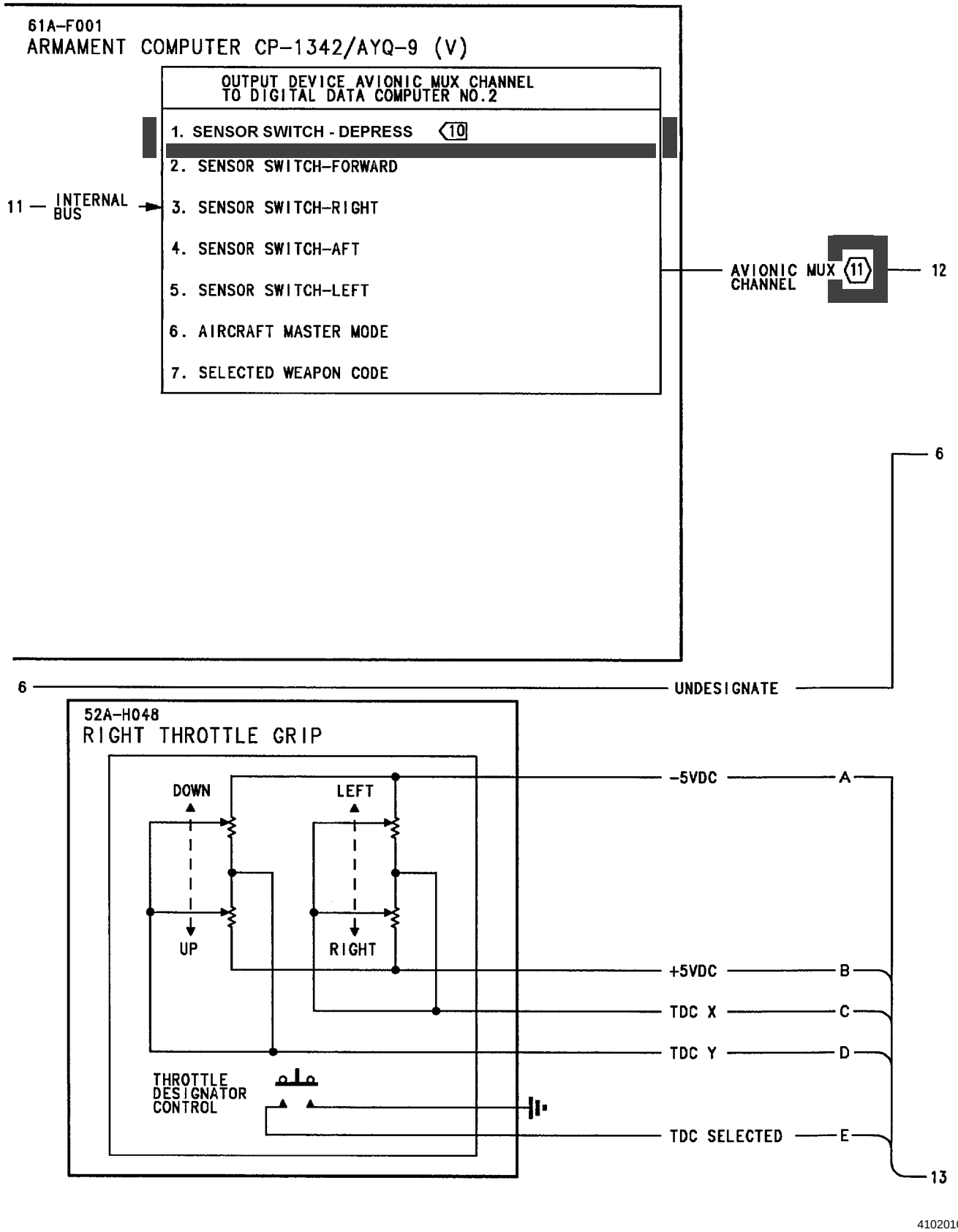
41020101

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 1)



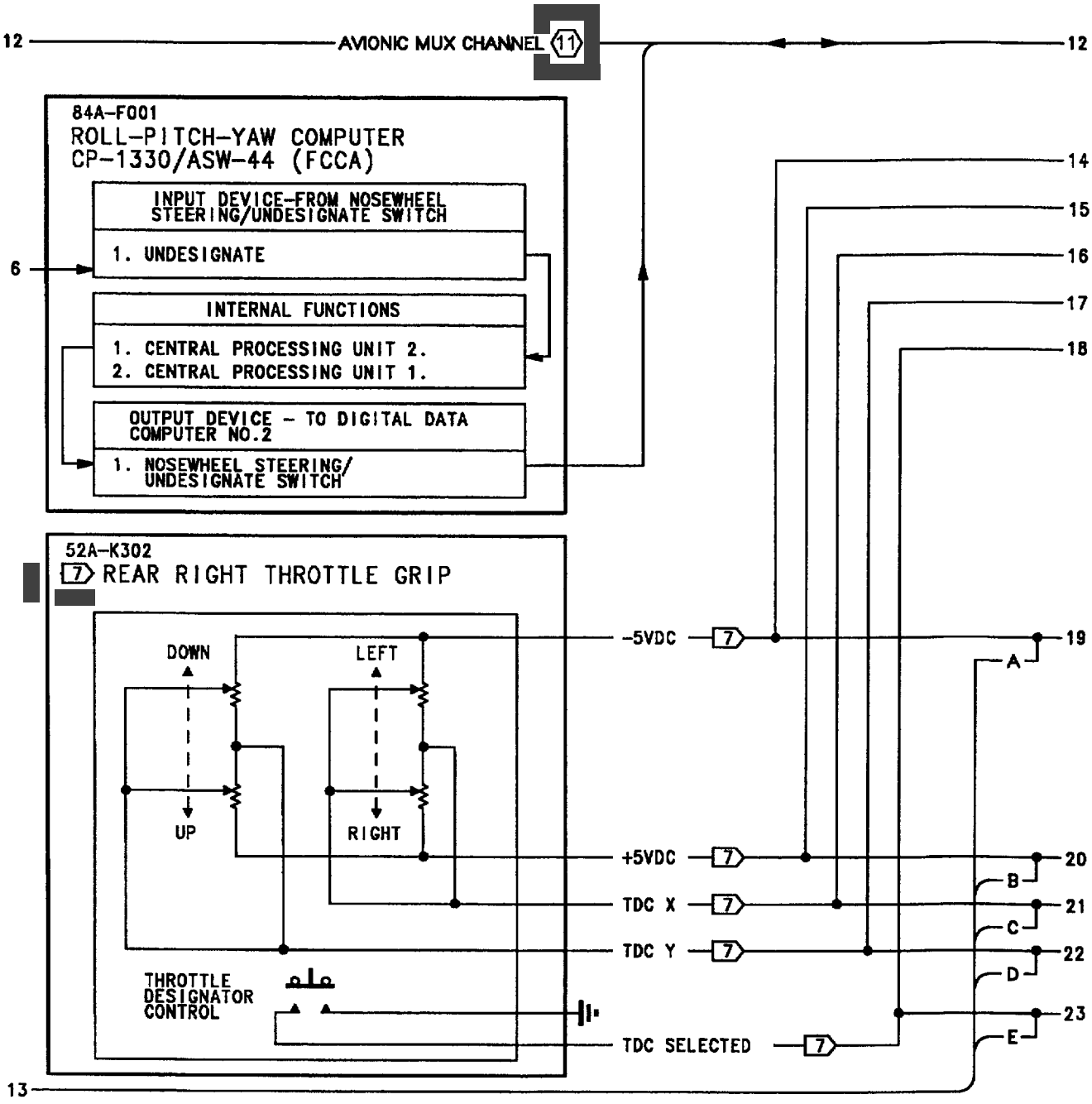
41020102

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 2)



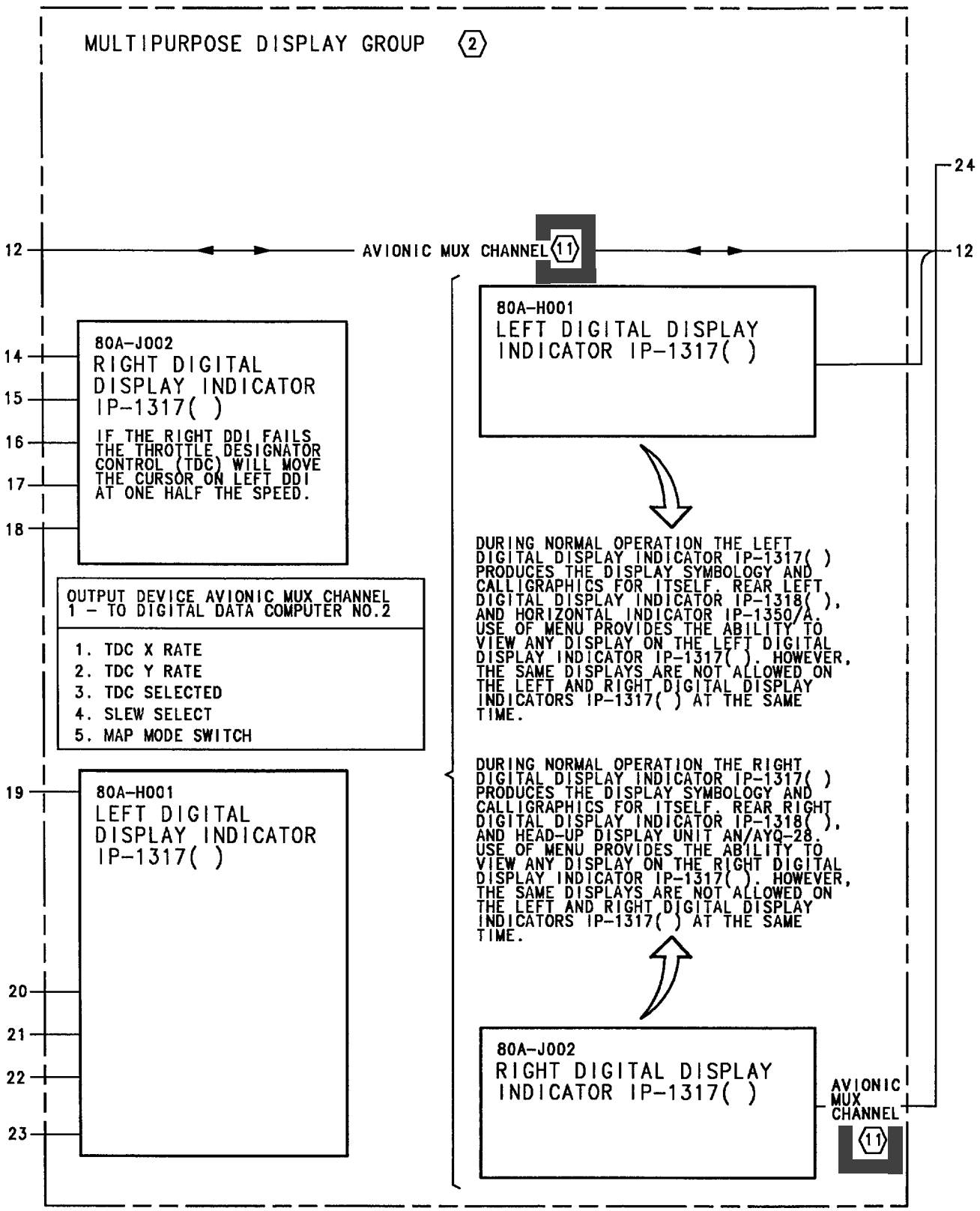
41020103

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 3)



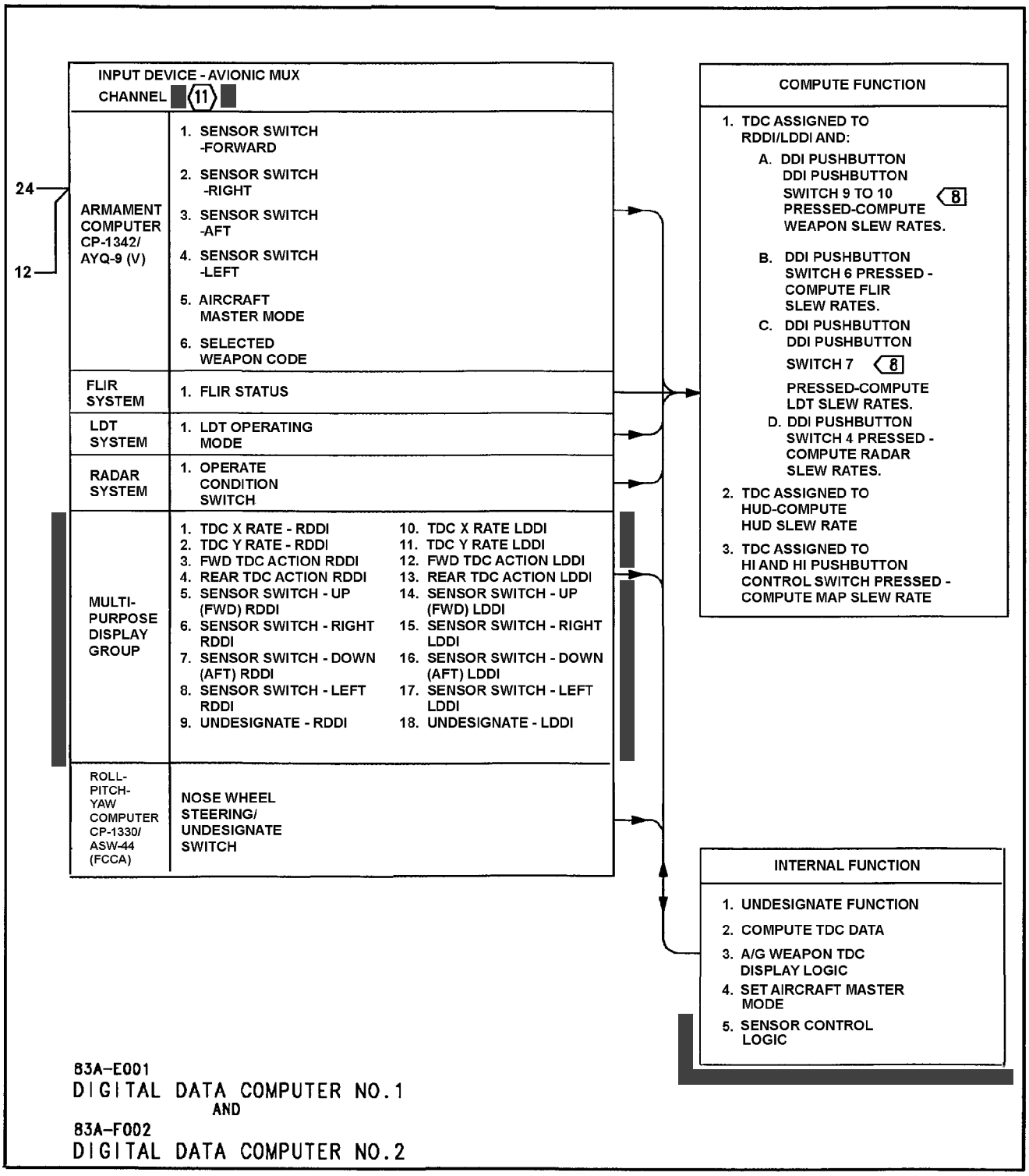
41020104

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 4)



41020105

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 5)



41020106

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 6)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

(2) THE MULTIPURPOSE DISPLAY IS MADE UP OF THE LEFT DIGITAL DISPLAY INDICATOR IP-1317( ), RIGHT DIGITAL DISPLAY INDICATOR IP-1317( ). HEAD-UP DISPLAY UNIT AN/AVQ-28, HORIZONTAL INDICATOR IP-1350/A, AND FOR F/A-18B REAR LEFT DIGITAL DISPLAY INDICATOR IP-1318( ), REAR RIGHT DIGITAL DISPLAY INDICATOR IP-1318( ), AND REAR CENTER DIGITAL DISPLAY INDICATOR IP-1318( ). FOR MULTIPURPOSE DISPLAY GROUP INTERFACE REFER TO A1-F18AC-745-500.

[3] 161353 THRU 161519 BEFORE F/A-18 AFC 27.

[4] 161520 AND UP; ALSO 161353 THRU 161519 AFTER F/A-18 AFC 27.

[5] F/A-18B 161354 THRU 161360, BEFORE F/A-18 AFC 27.

[6] F/A-18B 161704 AND UP, ALSO 161354 THRU 161360 AFTER F/A-18 AFC 27.

[7] F/A-18B.

[8] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 85A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 85A AND UP (A1-F18AC-SCM-000).

[9] 161353 THRU 163175 BEFORE F/A-18 AFC 292.

[10] 161353 THRU 163175 AFTER F/A-18 AFC 292.

(11) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 1. Sensor Control Switch and Throttle Designator Control (TDC) Assignment Simplified Schematic (Sheet 7)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - WEAPON STATION POWER CONTROL

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Weapon Stations 1, 2, and 5/6 Power Control Simplified Schematics WP043 00
Weapon Control System A1-F18AC-740-500
Weapon Station 1 Power Control Schematic WP026 00
Weapon Station 2 Power Control Schematic WP027 00
Weapon Station 3 Power Control Schematic WP028 00
Weapon Station 4 Power Control Schematic WP029 00
Weapon Station 5 Power Control Schematic WP030 00
Weapon Station 6 Power Control Schematic WP031 00
Weapon Station 7 Power Control Schematic WP032 00
Weapon Station 8 Power Control Schematic WP033 00
Weapon Station 9 Power Control Schematic WP034 00

Alphabetical Index

Subject	Page No.
Command Signal Encoder-Decoder	2
Introduction	2
Stores/Launchers/Racks Power Requirements, Table 1	7
Stores Power Control Logic	4
Weapon Station Power Control Operation	2
Weapon Station 1 and 9 Power Control	2
Weapon Station 2 and 8 Power Control	3
Weapon Station 3 and 7 Power Control	3
Weapon Station 4 Power Control	4
Weapon Station 5 Power Control	4
Weapon Station 6 Power Control	4

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) weapon station power control operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP043 00 for simplified weapon station power control schematics, the simplified schematics show typical weapon station power control functions. The simplified schematics show armament computer and weapon station power control interface, and list the armament computer functions used for power control computations.

4. For detailed station power control operation, see A1-F18AC-740-500 WP listed below:

a. WP026 00, Weapon Station 1 Power Control Schematic

b. WP027 00, Weapon Station 2 Power Control Schematic

c. WP028 00, Weapon Station 3 Power Control Schematic

d. WP029 00, Weapon Station 4 Power Control Schematic

e. WP030 00, Weapon Station 5 Power Control Schematic

f. WP031 00, Weapon Station 6 Power Control Schematic

g. WP032 00, Weapon Station 7 Power Control Schematic

h. WP033 00, Weapon Station 8 Power Control Schematic

i. WP034 00, Weapon Station 9 Power Control Schematic

5. Refer to WP014 00 for component locations.

6. WEAPON STATION POWER CONTROL OPERATION.

7. Electrical power is sent to weapons/stores and station encoder-decoders as a function of aircraft configuration. Table 1 lists the power required for the stores, launchers, and racks for the nine weapon stations.

8. Power operation is provided as listed below:

a. command signal encoder-decoder

b. weapon station 1 and 9 power control

c. weapon station 2 and 8 power control

d. weapon station 3 and 7 power control

e. weapon station 4 power control

f. weapon station 5 power control

g. weapon station 6 power control

h. stores power control logic

9. **COMMAND SIGNAL ENCODER-DECODER.** The power requirements for weapon station command signal encoder-decoders (encoder-decoders) are the same. Each encoder-decoder requires 28vdc and 115vac ϕA 400 Hz. The encoder-decoders that control pylon weapon stations also require essential 24/28vdc for emergency jettison and mechanical fuzing.

10. Command signal encoder-decoders are as listed below:

a. Wing Tip Command Signal Encoder-Decoder KY-851/AYQ-9(V)

b. Fuselage Command Signal Encoder-Decoder KY-854/AYQ-9(V)

c. Wing Pylon Command Signal Encoder-Decoder KY-853/AYQ-9(V)

d. Gun Command Signal Encoder-Decoder KY-855/AYQ-9(V)

11. Power is applied to the encoder-decoders when aircraft electrical power is on. The discrete encoder-decoder on (ground enable) from the Armament Computer CP-1342/AYQ-9(V) (armament computer) turns the encoder-decoder on. The ground enable turns on the power supply regulators in the encoder-decoder. The armament computer sends the ground enable to the encoder-decoder for the time required to do the selected operational function.

12. **WEAPON STATION 1 AND 9 POWER CONTROL.** The weapon station 1 power control simplified schematic, in WP043 00, is typical for weapon station 9. Operation for the two stations are the same. Station 1 operation is provided below.

13. Station 1 weapon power control provides 115vac ϕA and 28vdc to the Guided Missile Launcher LAU-7( ) and the AIM-9 sidewinder missile. When aircraft power is on, 28vdc is available at the launcher disconnect. The 115vac ϕA 400 Hz is applied to the launcher disconnect when station 1 power control relay is energized.

14. The station 1 power control relay is controlled by the armament computer as a function of the AIM-9 ident. The armament computer provides 28vdc filtered to the relay coil when the SMS is turned on. The ground for the relay coil is provided when an AIM-9 ident exists for weapon station 1. The relay will remain energized as long as the SMS is turned on and the AIM-9 ident exists.

15. **WEAPON STATION 2 AND 8 POWER CONTROL AND WEAPON STATION 3 AND 7 ON AIRCRAFT AFTER AFC 253 OR 292.** Weapon station 2 power control simplified schematic, in WP043 00, is typical for all wing pylon stations. Operation of stations 2 and 8 are the same. Station 2 operation is provided below.

16. Station 2 weapon power control provides 115vac 3ϕ 400 Hz and 28vdc to the air to air (A/A) and air to ground (A/G) pylon disconnects and 28vdc to the Aircraft Bomb Ejector Rack BRU-32( ).

17. The BRU-32 has 28vdc applied when aircraft electrical power is on. The 28vdc provides power for the lock/unlock circuit in the rack.

18. The A/A and A/G pylon disconnects have 28vdc applied when electrical power is applied to the aircraft. The 28vdc is used by launchers/stores that require control circuit power.

19. Weapon station 2 power control relay enables 115vac to the A/A and A/G pylon disconnects. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. The discrete ground enable is a function of the store loaded on the weapon station.

20. Weapon station 2 ϕC power control relay enables 115vac ϕC 400 Hz to the A/A and A/G pylon disconnects. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. The discrete ground enable is a function of the AGM-88 and on 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, AGM-84 and on aircraft AFTER AFC 253 OR 292, AGM-84E, SLAM, AGM-84H, SLAM ER, AGM-154, JSOW, GBU-31, JDAM and Guided Weapon Control Monitor Set AN/AWW-13.

21. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, Weapon Station 28vdc power control is added. 28vdc is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. The discrete ground enable is set when master arm logic in the armament computer is satisfied. Weapon station 28vdc power control is a function of AGM-88 and AGM-84 and on aircraft AFTER AFC 253 OR 292, AGM-84E, SLAM, AGM-84H, SLAM ER, AGM-154, JSOW, GBU-31, JDAM and Guided Weapon Control Monitor Set AN/AWW-13.

22. **WEAPON STATION 3 AND 7 POWER CONTROL - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.** Weapon station 2 power control simplified schematic, in WP043 00, is typical for all wing pylon stations, however stations 3 and 7 do not carry A/A weapons. Operation of stations 3 and 7 are the same. Station 3 operation is provided below.

23. Station 3 weapon power control provides 115vac and 28vdc to the air to ground pylon disconnect and 28vdc to the BRU-32.

24. The BRU-32 has 28vdc applied when aircraft electrical power is on. The 28vdc provides power for the lock/unlock circuit in the rack.

25. The A/G pylon disconnect has 28vdc applied when electrical power is applied to the aircraft. The 28vdc is used by launchers/stores that require control circuit power.

26. Weapon station 3 power control relay enables 115vac 3ϕ 400 Hz to the A/G pylon disconnect. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, 115vac 400 Hz is also applied to the A/A pylon disconnect for AGM-84. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. The discrete ground enable is a function of the store loaded on the weapon station.

27. Weapon station 3 ϕC power control relay enables 115vac ϕC 400 Hz to the A/G pylon disconnect. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. The discrete ground enable is a function of AGM-88 and on 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, AGM-84.

28. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, weapon station 28vdc power control is added. 28vdc is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. The discrete ground enable is set when master arm logic in the armament computer is satisfied. Weapon station 28vdc power control is a function of AGM-88 and AGM-84.

29. **WEAPON STATION 4 POWER CONTROL.** For simplified schematic, refer to WP043 00. Weapon station 6 power control is typical for both fuselage stations.

30. Station 4 power control provides 115vac and 28vdc to the Aircraft Guided Missile Launcher LAU-116( ) and the Detecting Set AN/AAS-38 (FLIR pod) disconnect.

31. The launcher disconnect has 28vdc applied when electrical power is applied to the aircraft. The 28vdc is used by the launcher to control lock/unlock circuit functions.

32. Weapon station 4 power control relay enables 115vac 3ϕ 400 Hz to the launcher disconnect. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay. The discrete ground enable is a function of the AIM-7 ident or, on aircraft AFTER AFC 253 OR 292, AIM-120 ident, for the weapon station.

33. The FLIR pod disconnect has 28vdc and 115vac 3ϕ 400 Hz applied when electrical power is applied to the aircraft.

34. **WEAPON STATION 5 POWER CONTROL.** For simplified schematic refer to WP043 00.

35. Weapon station 5 power control provides 115vac and 28vdc to the centerline pylon disconnect and 28vdc to the BRU-32.

36. The BRU-32 has 28vdc applied when aircraft electrical power is on. The 28vdc provides power for the lock/unlock circuit in the rack.

37. The pylon disconnect has 28vdc applied when electrical power is applied to the aircraft. The 28vdc is used by stores that require control circuit power.

38. Weapon station 5 power control relay enables 115vac 3ϕ 400 Hz to the pylon disconnect. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The armament computer controls the relay by applying a discrete ground enable to the relay coil. On aircraft AFTER AFC 253 OR 292, the discrete ground enable is a function of the Guided Weapon Control-Monitor Set AN/AWW-13 when loaded on weapon station 5.

39. **WEAPON STATION 6 POWER CONTROL.** For simplified schematic, refer to WP043 00.

40. Station 6 power control provides 115vac and 28vdc to the LAU-116 and Laser Detector-Tracker-Strike Camera Set AN/ASQ-173 (LDT) disconnects.

41. The LAU-116 has 28vdc applied when aircraft electrical power is on. The 28vdc provides power for control circuits in the LAU-116. The LDT disconnect has 115vac ϕA 400 Hz and 28vdc applied when aircraft electrical power is on.

42. Weapon station 6 power control relay enables 115vac 3ϕ 400 Hz to the launcher disconnect. The 28vdc filtered is applied to the relay coil when the SMS is turned on. The Armament Computer controls the relay by applying a discrete ground enable to the relay. The discrete ground enable is a function of the AIM-7 ident or, on aircraft AFTER AFC 253 OR 292, AIM-120 ident when loaded on the weapon station.

43. **STORES POWER CONTROL LOGIC.** The station power control relay is controlled by a discrete ground enable from the armament computer. The discrete ground enable is a function of the store loaded aboard the weapon station. The discrete ground enable output production is different for each weapon/store. Stores that require weapon power control are listed below:

a. AIM-7 Sparrow

b. AIM-9 Sidewinder

c. AGM-65 Maverick

d. AGM-88 HARM

e. AGM-84 Harpoon

f. AGM-45 Shrike

g. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM

h. AIM-120 AMRAAM (AFTER AFC 253 OR 292)

i. Advanced D/L pod (AFTER AFC 253 OR 292)

j. AGM-84H SLAM ER (AFTER AFC 253 OR 292)

k. AGM-154 JSOW (AFTER AFC 253 OR 292)

l. GBU-31 JDAM (AFTER AFC 253 OR 292)

44. **AIM-120 AMRAAM - AFTER AFC 253 OR 292.** The weapon station power control discrete is set after completing initial (power up) BIT. When an AIM-120 ident exist from the weapon station the discrete power control is enabled for the station.

45. The power control discrete is removed as listed below:

a. Armament computer can not determine specific store type after 3 seconds at initial SMS power up.

b. Weapon station status is fail or hung.

c. When commit to launch is received from the missile.

d. After a maximum of 5 seconds since data link test commanded.

46. **AIM-7 Sparrow.** The weapon station power control discrete is set after completing initiated power on BIT. When the radar on discrete exists to the armament computer and an AIM-7 ident exist from the weapon station the discrete power control is enabled for the station.

47. The power control discrete is removed as listed below:

a. 1.3 seconds after battery activate is sent to the missile (launch sequence).

b. If missile did not tune after the 5 second tune time during power up.

c. When radar on discrete does not exist for 7 seconds.

48. **AIM-9 Sidewinder.** A discrete ground enable is set after initial (power up) BIT when an AIM-9 ident exists. The discrete ground enable exists as long as the AIM-9 ident exists.

49. **AGM-65 Maverick.** A discrete ground enable is set after completing initial (power on) BIT for the stations with AGM-65 ident. The discrete ground enable exists as long as the AGM-65 ident exists and the station status is not fail or the missile is not hung.

50. **AGM-88 HARM.** The HARM weapon requires 115vac ϕC heater power, 115vac 3ϕ operate power and 28vdc launcher power.

51. Heater Power. A discrete ground enable is set to energize the 115vac weapon station ϕC power control relay. The discrete is set after completing initial (power up) BIT for those stations with HARM idents.

52. Operate Power. A discrete ground enable is set to energize the 115vac 3ϕ weapon station power control relay for stations that are not failed or hung. In flight, the discrete is set when HARM is selected and weight is off wheels. The discrete is set for the priority station except when self protect (SP) pullback is the selected HARM delivery mode. When SP pull back is selected, operate power is applied to all HARM stations.

53. Operate power is also enabled to the HARM during selective jettison and BIT (weight on/off wheels) operation. When selective jettison is being done, operate power is applied to the HARM to enable uncompromised jettison. When doing initiated BIT on a HARM, operate power is applied to all weapon stations with HARM idents.

54. Launcher Power - 161353 THRU 161987 BEFORE F/A-18 AFC 74. Launcher power is used by the Aircraft Guided Missile Launcher LAU-118/A to enable missile fire. The LAU-118 solenoid station ( ) relay is energized by 28vdc master arm from the MASTER switch on the master arm control panel assembly. When the relay energizes, 28vdc is sent to the launcher though energized contacts of the station power control relay.

55. Launcher Power - 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74. Launcher power is used by the Aircraft Guided Missile Launcher LAU-118/( ) to enable missile fire. The station ( ) 28vdc power control relay is energized by a discrete ground from the armament computer. The discrete ground is enabled when master arm logic in the armament computer is satisfied.

56. **Advanced Data Link POD - AFTER AFC 253 OR 292.** A discrete ground enable exists during initial (power up) BIT when a data link pod ident exists. The discrete ground enable exists as long as the data link pod ident exists.

57. **AGM-84 Harpoon** The harpoon missile requires 115vac ϕC heater power, 115vac 3ϕ operate power and 28vdc seeker standby power.

58. Heater Power. A discrete ground enable is set after completing initial (power on) BIT for the stations with AGM 84 idents. The discrete energizes the weapon station ϕC power control relay. The energized relay sends 115vac ϕC to the harpoon. The discrete is removed when operate power is applied to the harpoon.

59. Operate Power. When harpoon is selected, a discrete ground enable is set to energize the weapon station power control relays. The discrete is enabled for harpoon stations that are not failed, hung or have a lock status of the BRU-32. When the weapon station power control relay energizes, 115vac 3ϕ is applied to the missile.

60. Operate power is removed from the priority station 2 seconds after intent to launch is sent to the missile (launch sequence started).

61. Seeker Standby Power. A discrete ground from the armament computer is set for the station 28vdc power control relay when A/G aircraft master mode is selected and when master arm exists or harpoon is the selected weapon. The discrete will remain set until both A/G and master arm are deselected.

62. The discrete is turned off during the launch sequence when operate power is removed.

63. **WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) AGM-84E SLAM** The SLAM missile requires 115vac ϕC heater power, 115vac 3ϕ operate power and 28vdc seeker standby power.

64. Heater Power. A discrete ground enable is set after completing initial (power on) BIT for the stations with AGM 84E idents. The discrete energizes the weapon station ϕC power control relay. The energized relay sends 115vac ϕC to the SLAM. The discrete is removed when operate power is applied to the SLAM.

65. Operate Power. When SLAM is selected, a discrete ground enable is set to energize the weapon station power control relays. The discrete is enabled for SLAM stations that are not failed, hung or have a lock status of the BRU-32. When the weapon station power control relay energizes, 115vac 3ϕ is applied to the missile.

66. Operate power is removed from the priority station 2 seconds after intent to launch is sent to the missile (launch sequence started).

67. Seeker Standby Power. A discrete ground from the armament computer is set for the station 28vdc power control relay when A/G aircraft master mode is selected and when master arm exists or SLAM is the selected weapon. The discrete will remain set until both A/G and master arm are deselected.

68. **AGM-84H SLAM ER - AFTER AFC 253 OR 292.** The SLAM ER missile requires 115vac, 400 Hz, 3Ø operate power and 28vdc No. 1 power. The SMS provides this power uninterrupted to all SLAM ER variants as long as their status is not HUNG, FAIL or gone. The power switching is controlled internal to the SLAM ER weapon.

69. **AGM-154 JSOW - AFTER AFC 253 OR 292.** The JSOW weapon requires 115vac, 400 Hz, 3Ø and 28vdc No. 1 operate power. The 28vdc No. 1 is maintained as standby power. All power is removed if JSOW status is HUNG, FAIL or gone.

70. **GBU-31 JDAM - AFTER AFC 253 OR 292.** The JDAM weapon requires 115vac, 400 Hz, 3Ø and 28vdc No. 1 power. The power is removed upon completion of mission data loading and then reapplied before launch. All power is removed if the JDAM status is HUNG, FAIL or gone.

Table 1. Stores/Launchers/Racks Power Requirement

Stores/Launchers/Racks	Power Required	Weapon Station
AIM-120 AMRAAM (3)	115vac, 3ϕ, 400 Hz	2, 3, 4, 6, 7, 8
AIM-7 Sparrow	115vac, 3ϕ, 400 Hz	2, 4, 6, 8
AIM-9 Sidewinder	115vac, ϕA, 400 Hz 28vdc	1, 2, 8, 9
AGM-65 Maverick	115vac, 3ϕ, 400 Hz	2, 3, 7, 8
AGM-84 Harpoon (1)	115vac, 3ϕ, 400 Hz 28vdc	2, 3, 7, 8
AGM-84E SLAM (2)	115vac, 3ϕ, 400 Hz 28vdc	2, 3, 7, 8
AGM-84H SLAM ER (3)	115vac, 3ϕ, 400 Hz	2, 3, 7, 8
AGM-154 JSOW (3)	115vac, 3ϕ, 400 Hz	2, 3, 7, 8
AGM-88 HARM	115vac, 3ϕ, 400 Hz 28vdc	2, 3, 7, 8
bombs	None	2, 3, 5, 7, 8
rockets	None	2, 3, 7, 8
Aircraft Guided Missile Launcher LAU-115( )	28vdc	2, 8
Aircraft Guided Missile Launcher LAU-116( )	28vdc	4, 6
Aircraft Guided Missile Launcher LAU-117( )	115vac, 3ϕ, 400 Hz 28vdc	2, 3, 7, 8
Aircraft Guided Missile Launcher LAU-118( )	28vdc	2, 3, 7, 8
GBU-31 JDAM	115vac, 400 Hz, 3ϕ, 28vdc	2, 3, 7, 8
Guided Missile Launcher LAU-7( )	115vac, ϕA, 400 Hz 28vdc	1, 2, 8, 9
Guided Missile Launcher LAU-127 (3)	115vac, ϕC, 400 Hz 28vdc	2, 3, 7, 8
Aircraft Bomb Ejector Rack BRU-32( )	28vdc	2, 3, 5, 7, 8
Aircraft Bomb Ejector Rack BRU-33( )	28vdc	2, 3, 5, 7, 8
Detecting Set AN/AAS-38 (Forward Looking Infrared System)	115vac, 3ϕ; 400 Hz 28vdc	4
Laser Detector-Tracker - Strike Camera Set AN/ASQ-173	115vac, ϕA, 400 Hz 28vdc	6
Guided Weapon Control-Monitor Set AN/AWW-13 (3)	115vac, 3ϕ, 400 Hz	2, 3, 5, 7, 8
Fuel Tank FPU-6/A or FPU-8/A	None	3, 5, 7

Table 1. Stores/Launchers/Racks Power Requirement (Continued)

Stores/Launchers/Racks	Power Required	Weapon Station
NOTES		
[1] 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74.		
[2] WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).		
[3] 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.		

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - WEAPON STATION POWER CONTROL SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

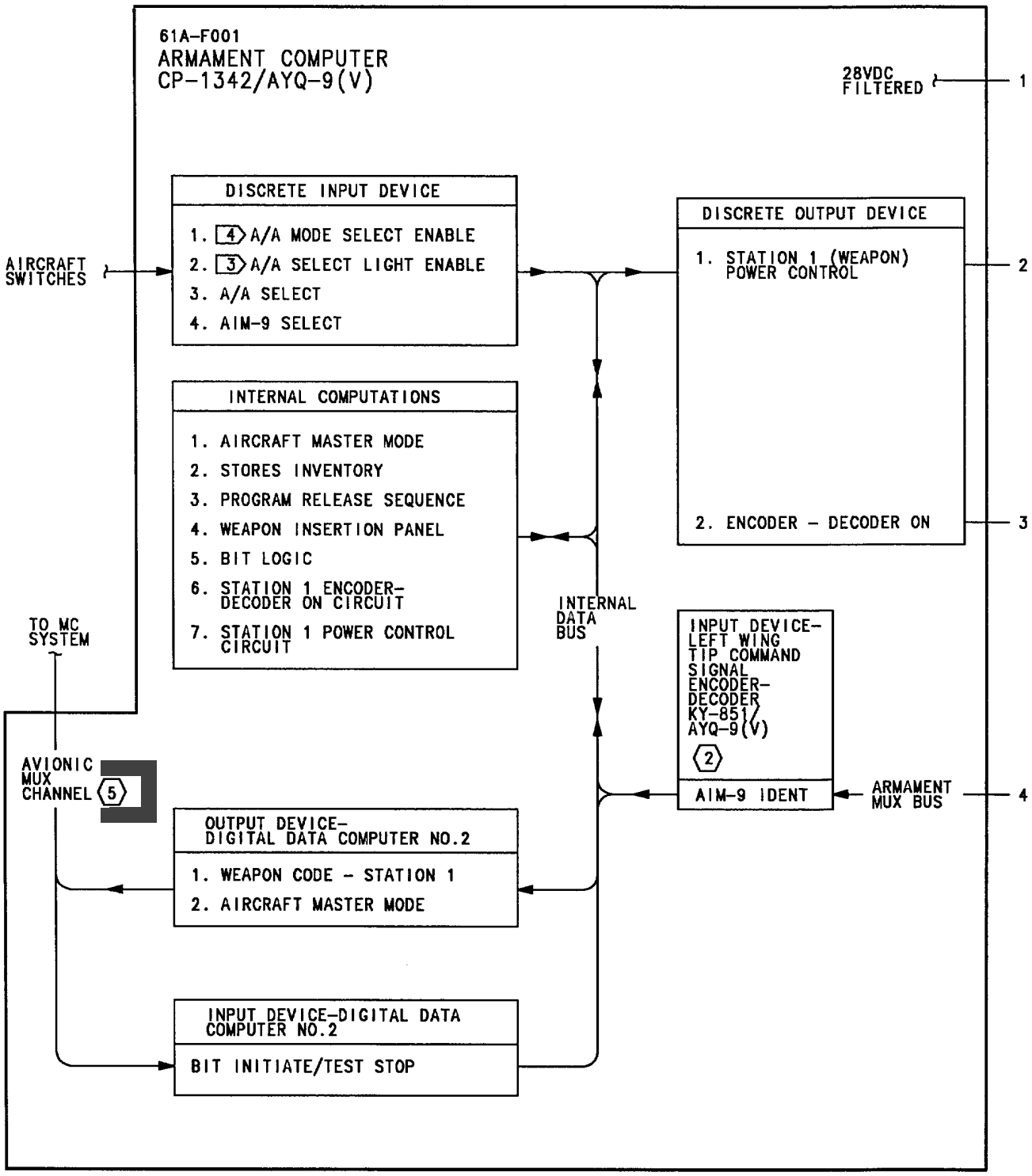
Subject	Page No.
Introduction	1
Weapon Station 1 Power Control Simplified Schematic, Figure 1	2
Weapon Station 2 Power Control Simplified Schematic, Figure 2	4
Weapon Station 5 and 6 Power Control Simplified Schematic, Figure 3	8

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only

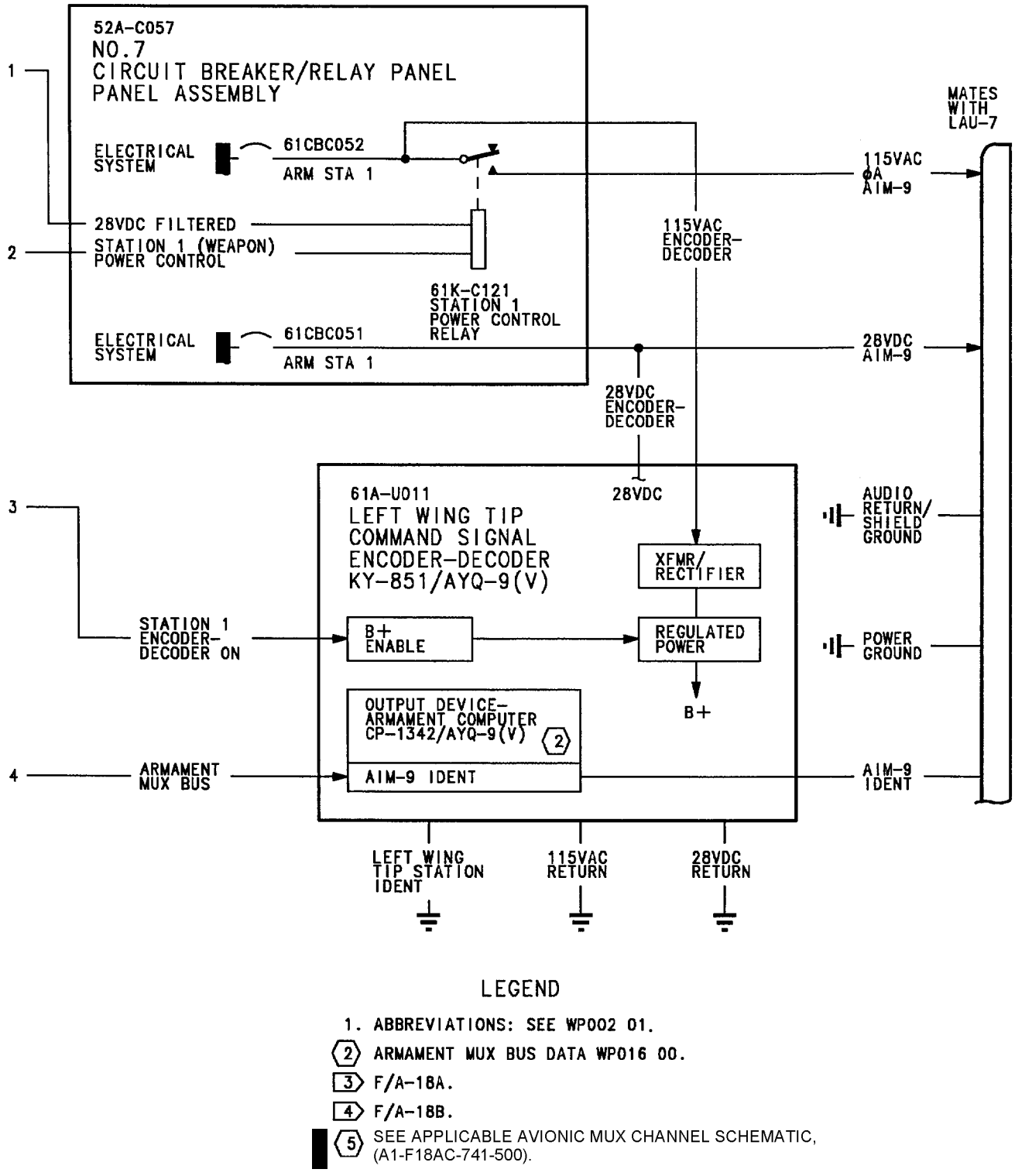
1. INTRODUCTION.

2. The schematics in this work package provide support for the data in WP042 00.



04300101

Figure 1. Weapon Station 1 Power Control Simplified Schematic (Sheet 1)



LEGEND

1. ABBREVIATIONS: SEE WP002 01.

(2) ARMAMENT MUX BUS DATA WP016 00.

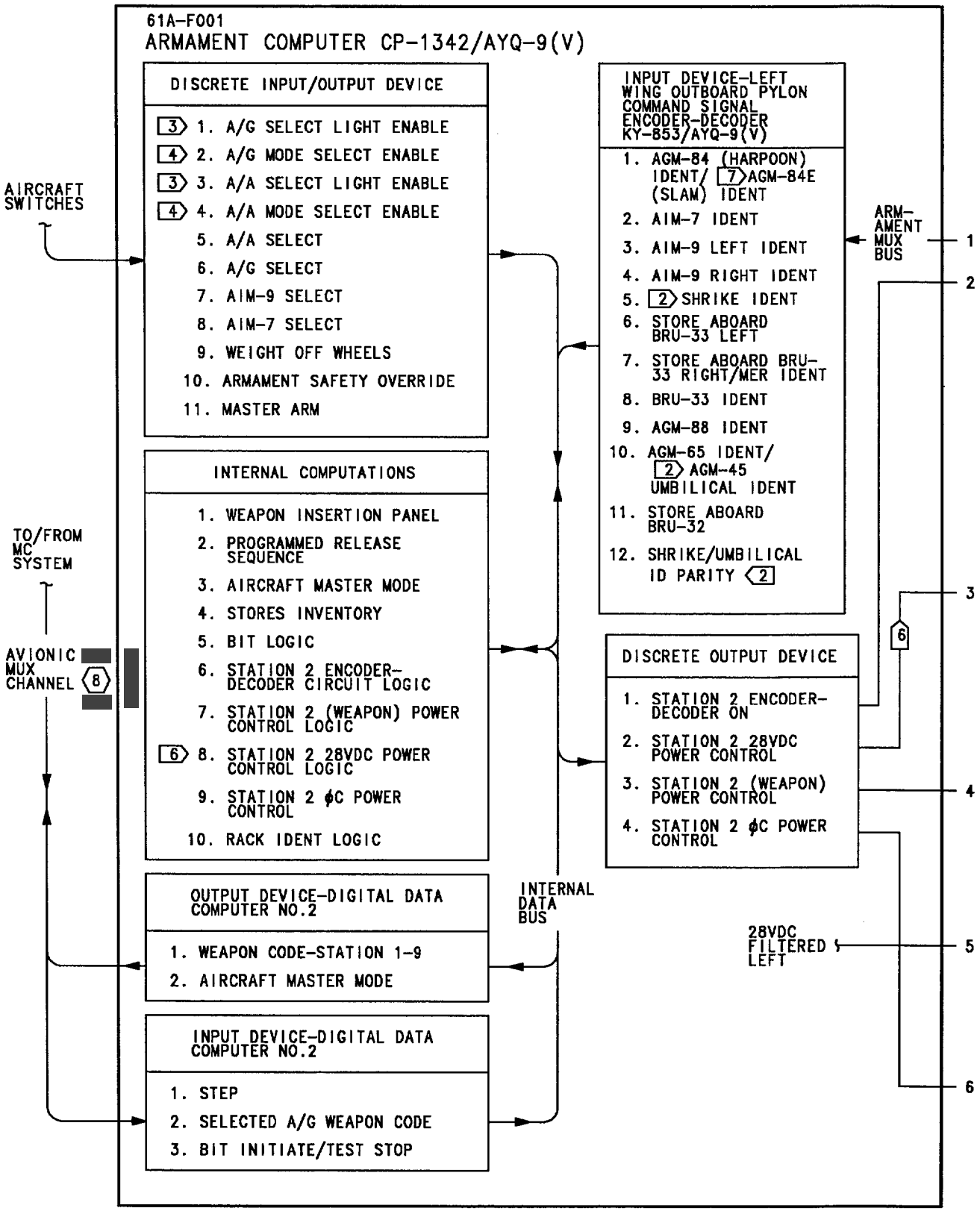
(3) F/A-18A.

(4) F/A-18B.

(5) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

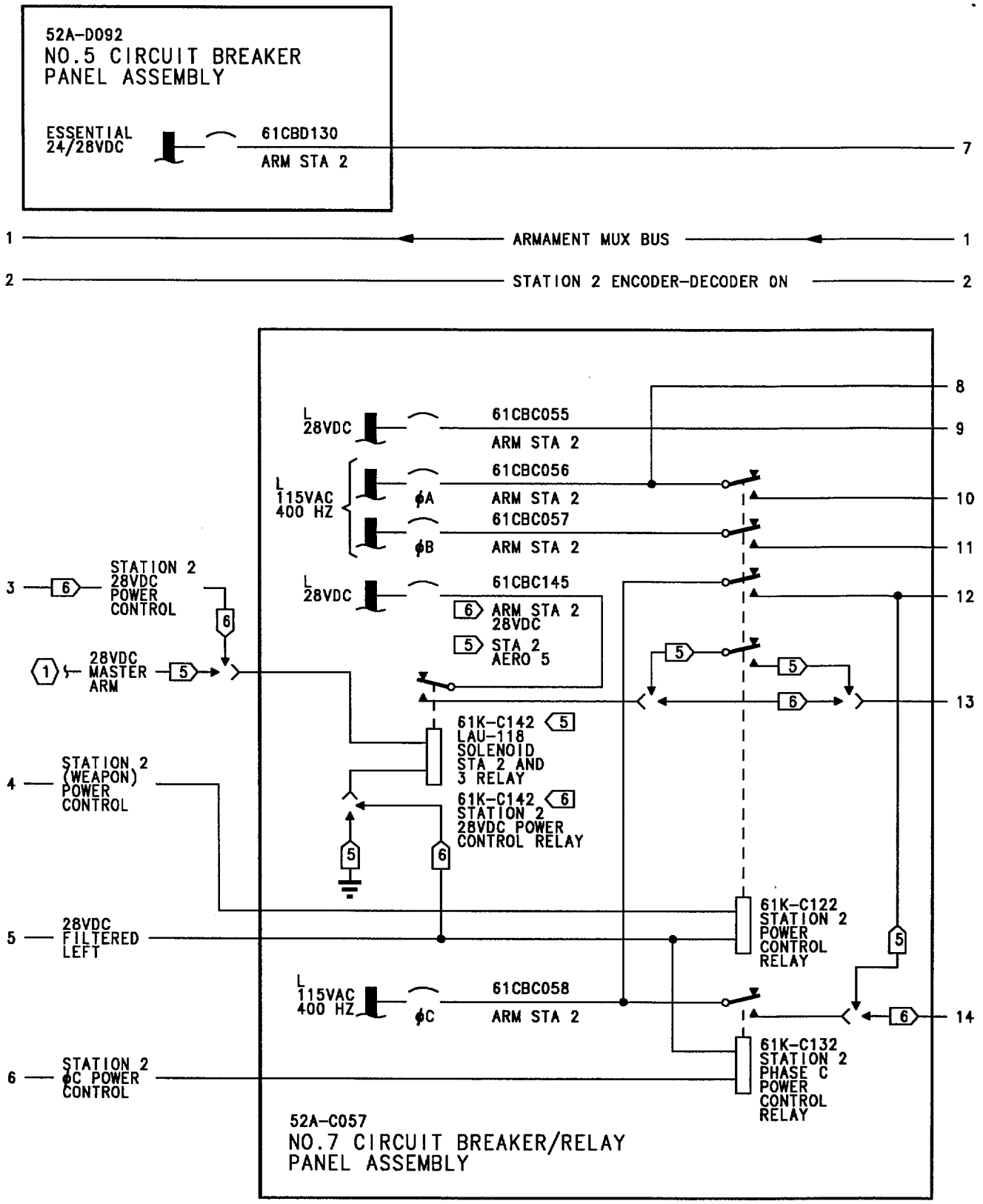
04300102

Figure 1. Weapon Station 1 Power Control Simplified Schematic (Sheet 2)



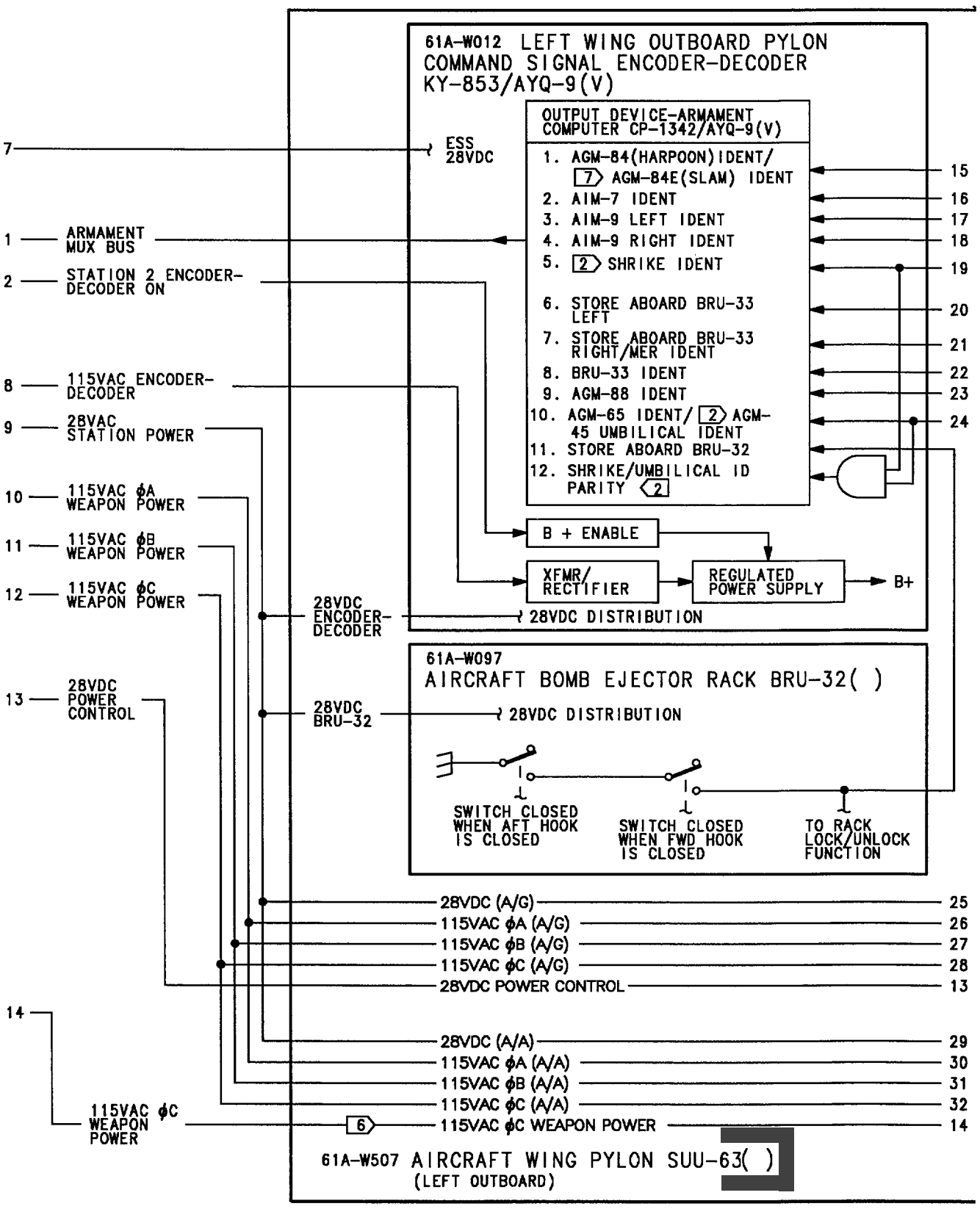
04300201

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 1)



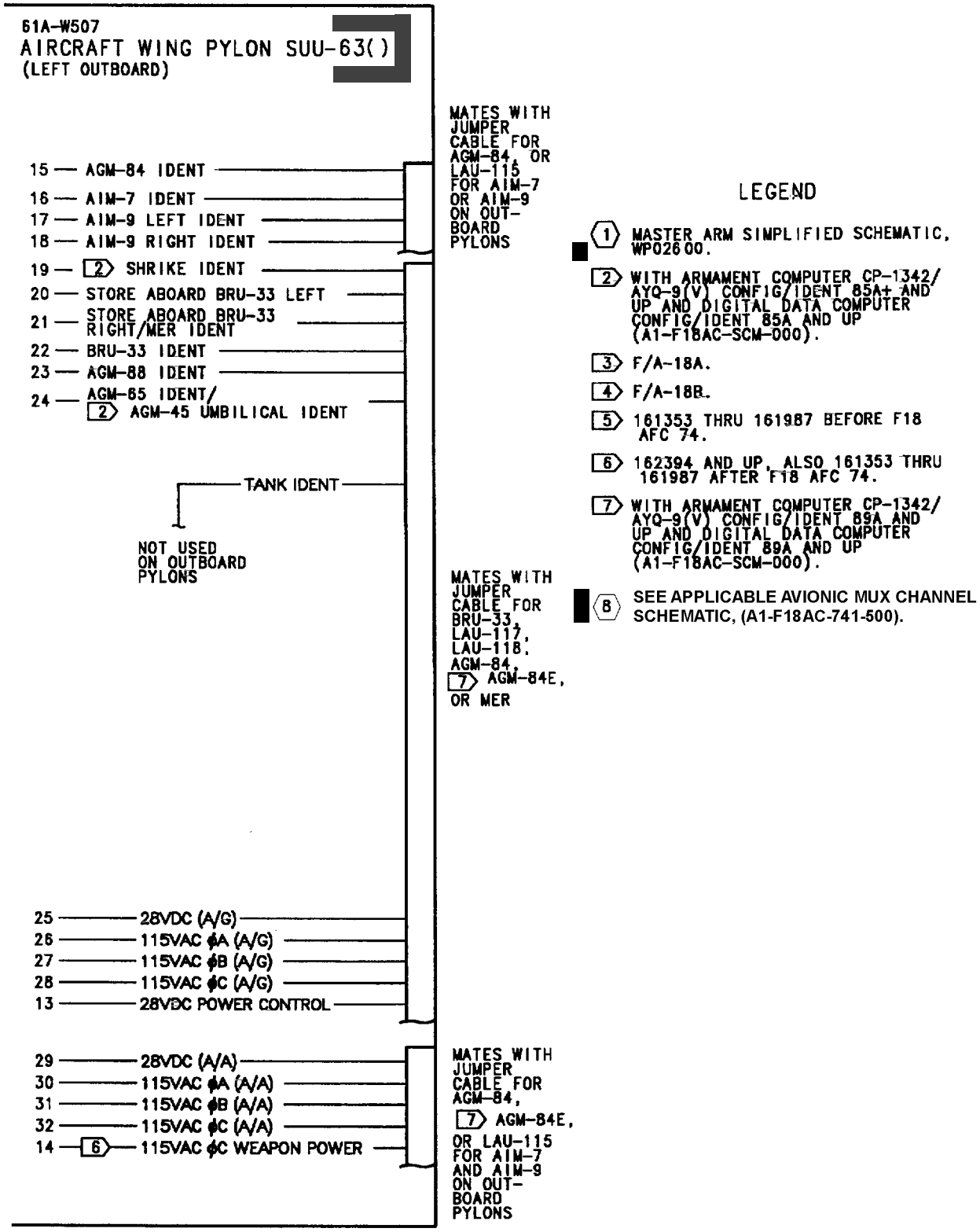
04300202

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 2)



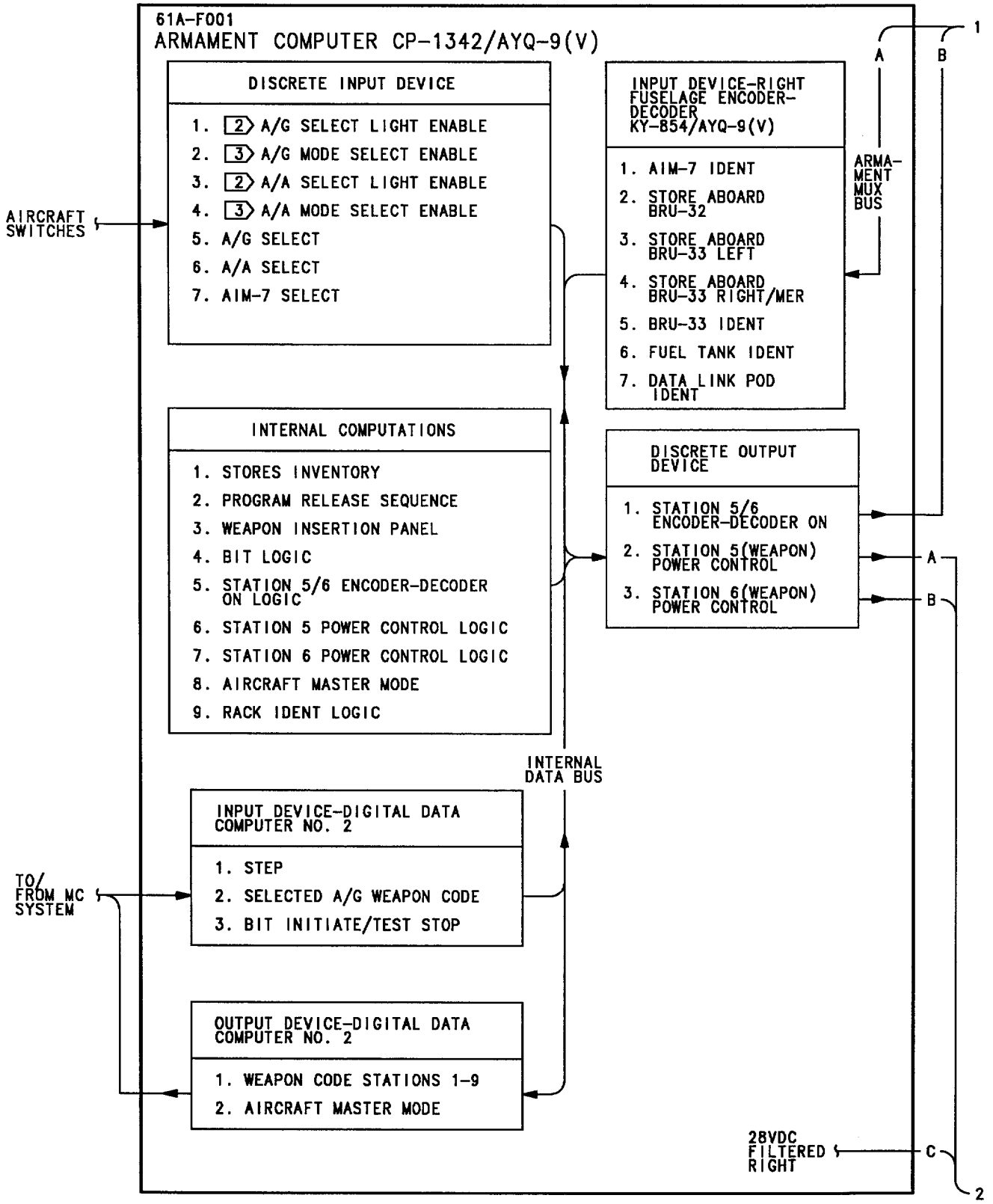
04300203

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 3)



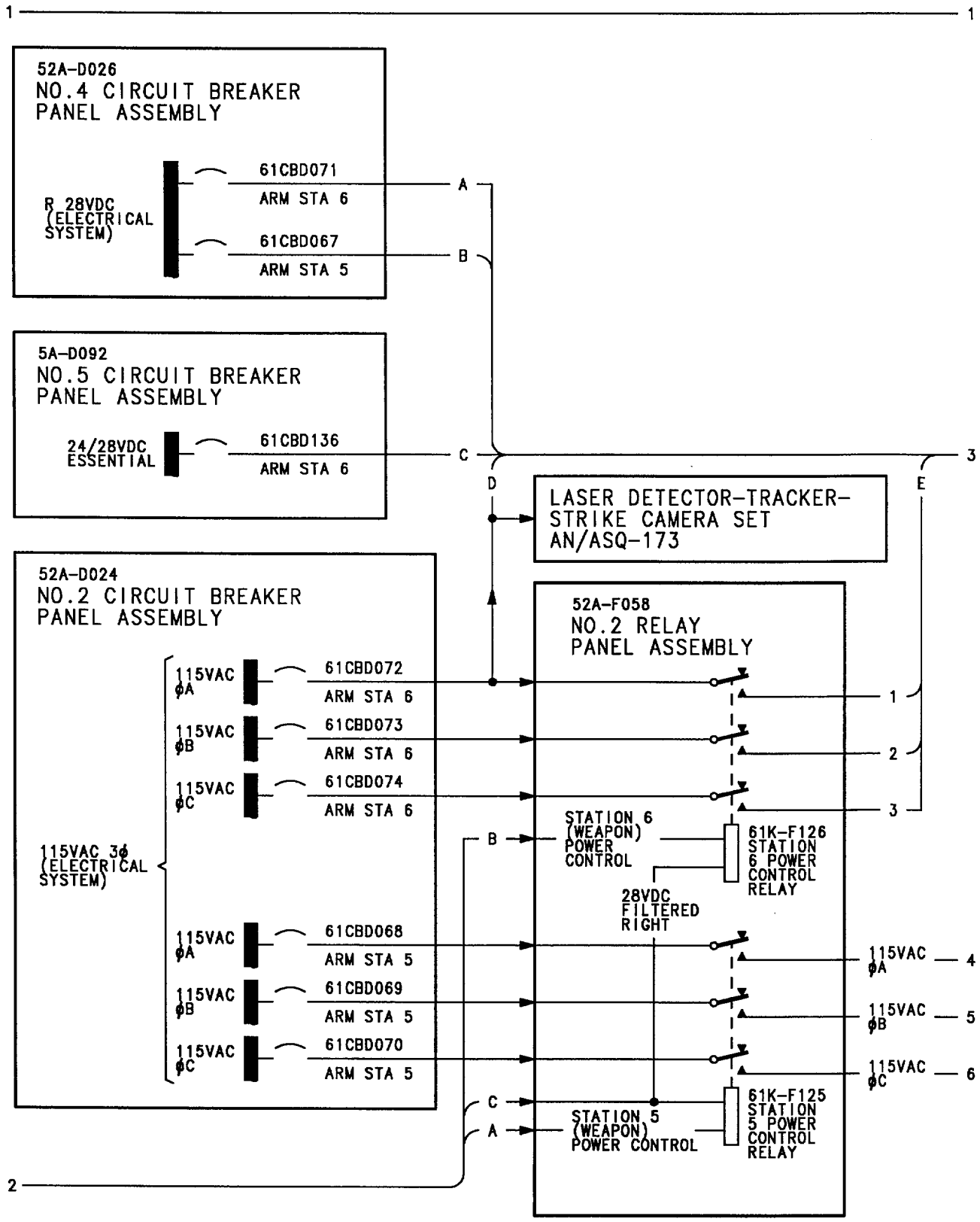
04300204

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 4)



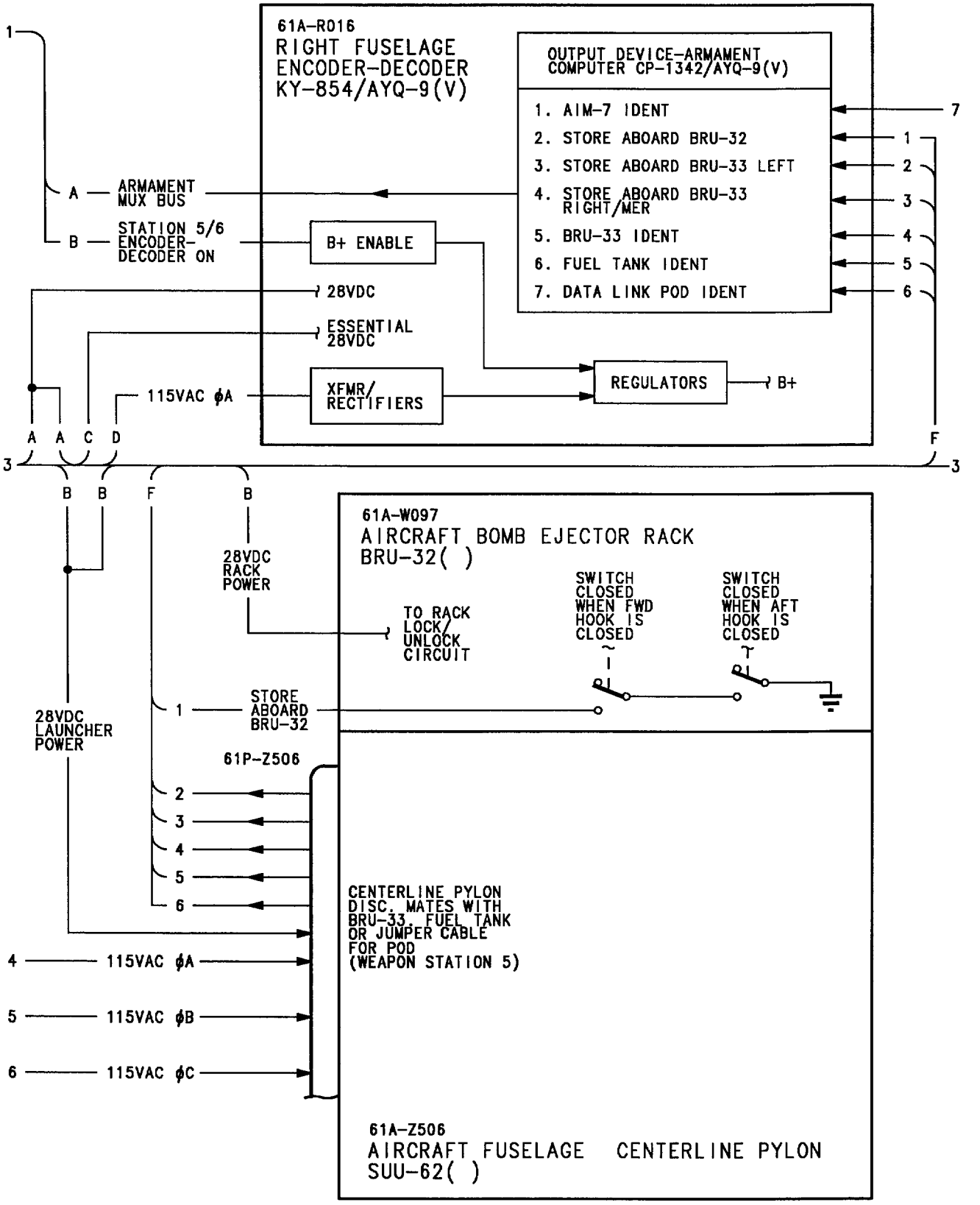
04300301

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 1)



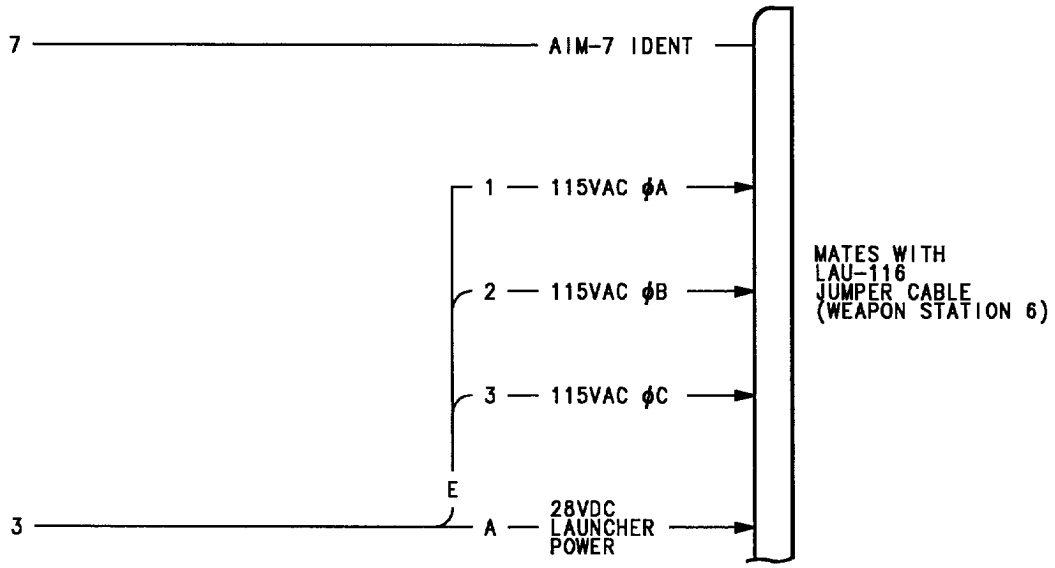
04300302

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 2)



04300303

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 3)



LEGEND

1. ABBREVIATIONS: SEE WP002 01

[2] F/A-18A.

[3] F/A-18B.

04300304

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 4)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - WEAPON STATION POWER CONTROL SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

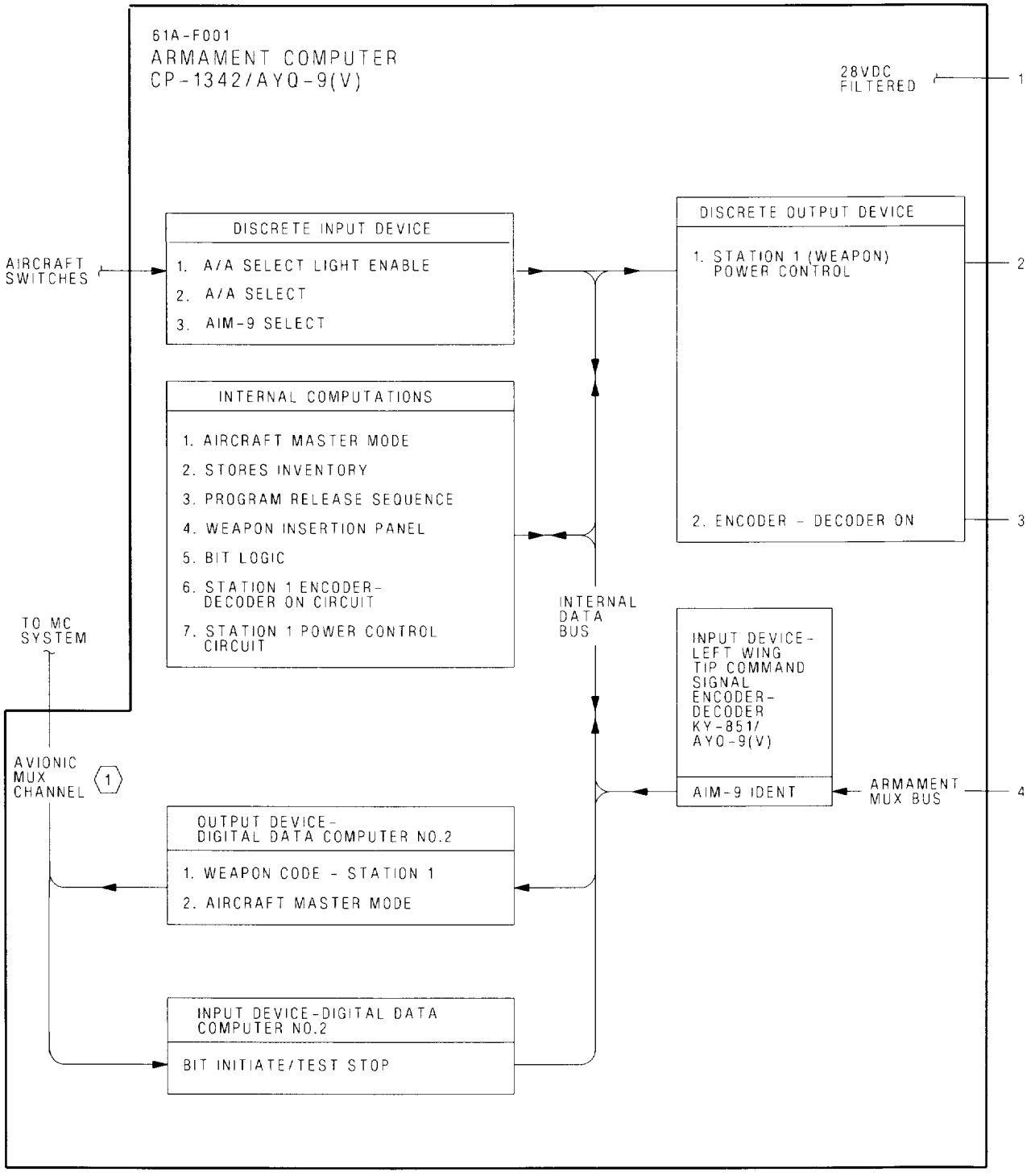
Subject	Page No.
Introduction	1
Weapon Station 1 Power Control Simplified Schematic, Figure 1	2
Weapon Station 2 Power Control Simplified Schematic, Figure 2	4
Weapon Station 5 and 6 Power Control Simplified Schematic, Figure 3	8

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

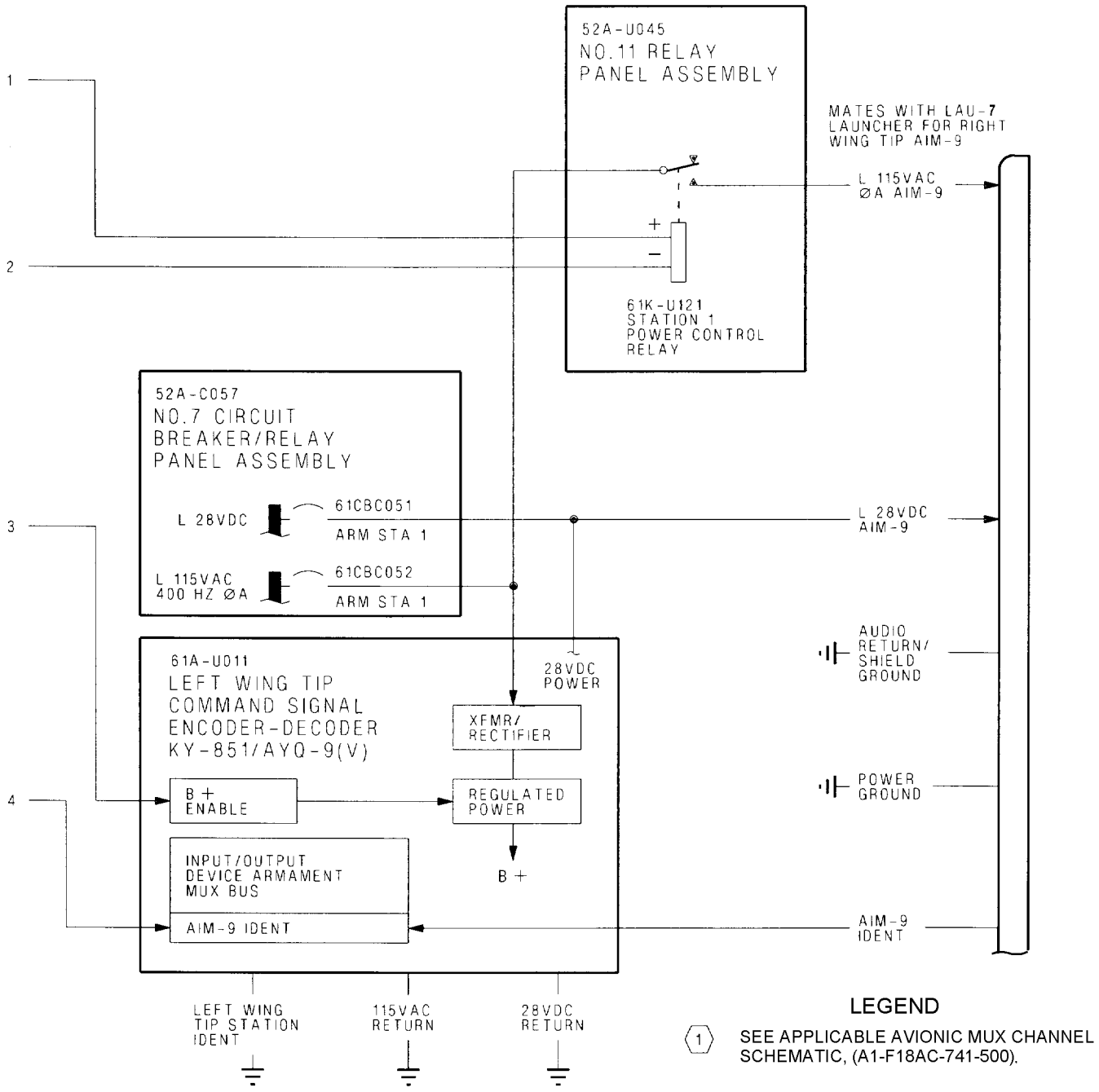
1. INTRODUCTION.

2. The schematics in this work package provide support for the data in WP042 00.



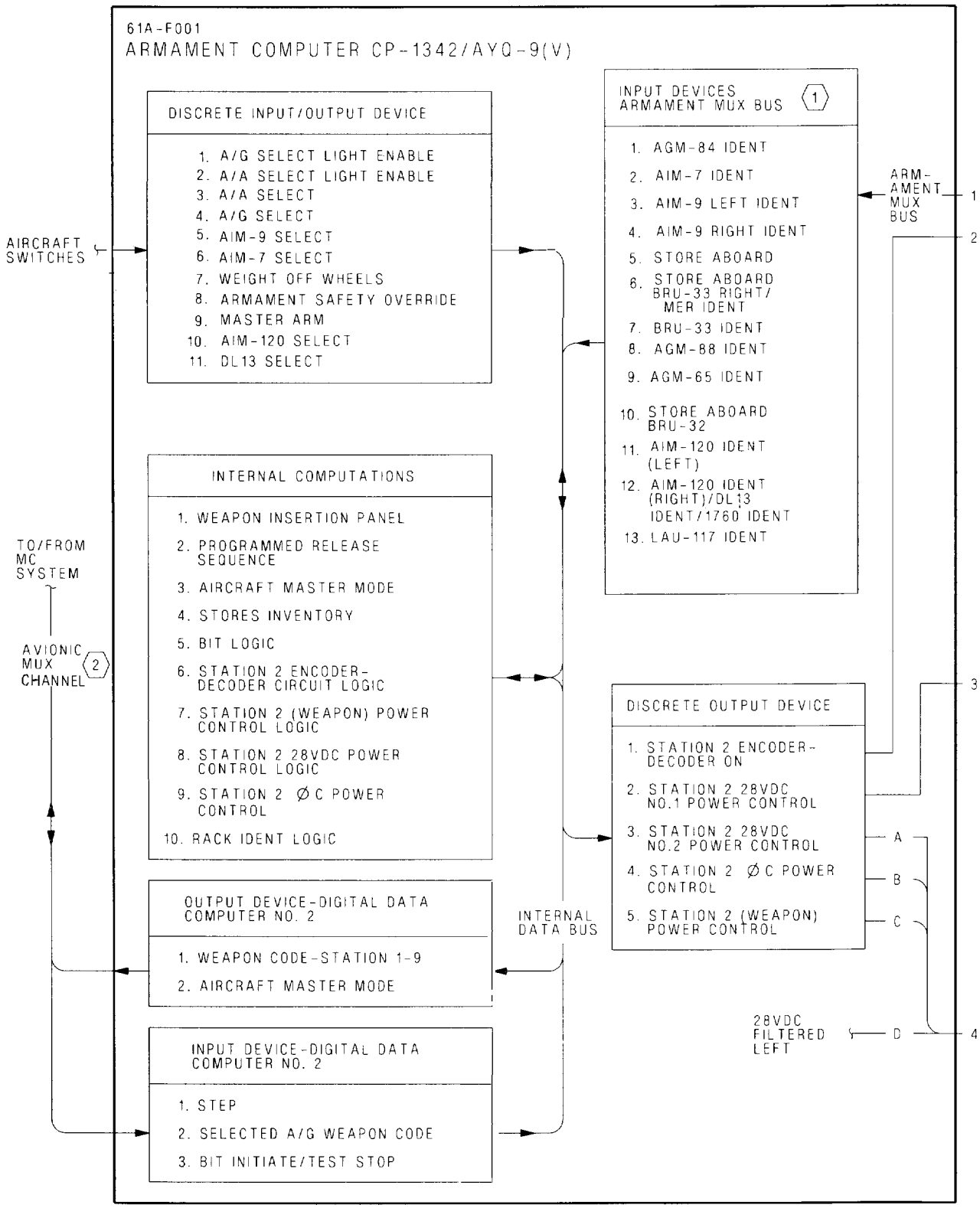
43010101

Figure 1. Weapon Station 1 Power Control Simplified Schematic (Sheet 1)



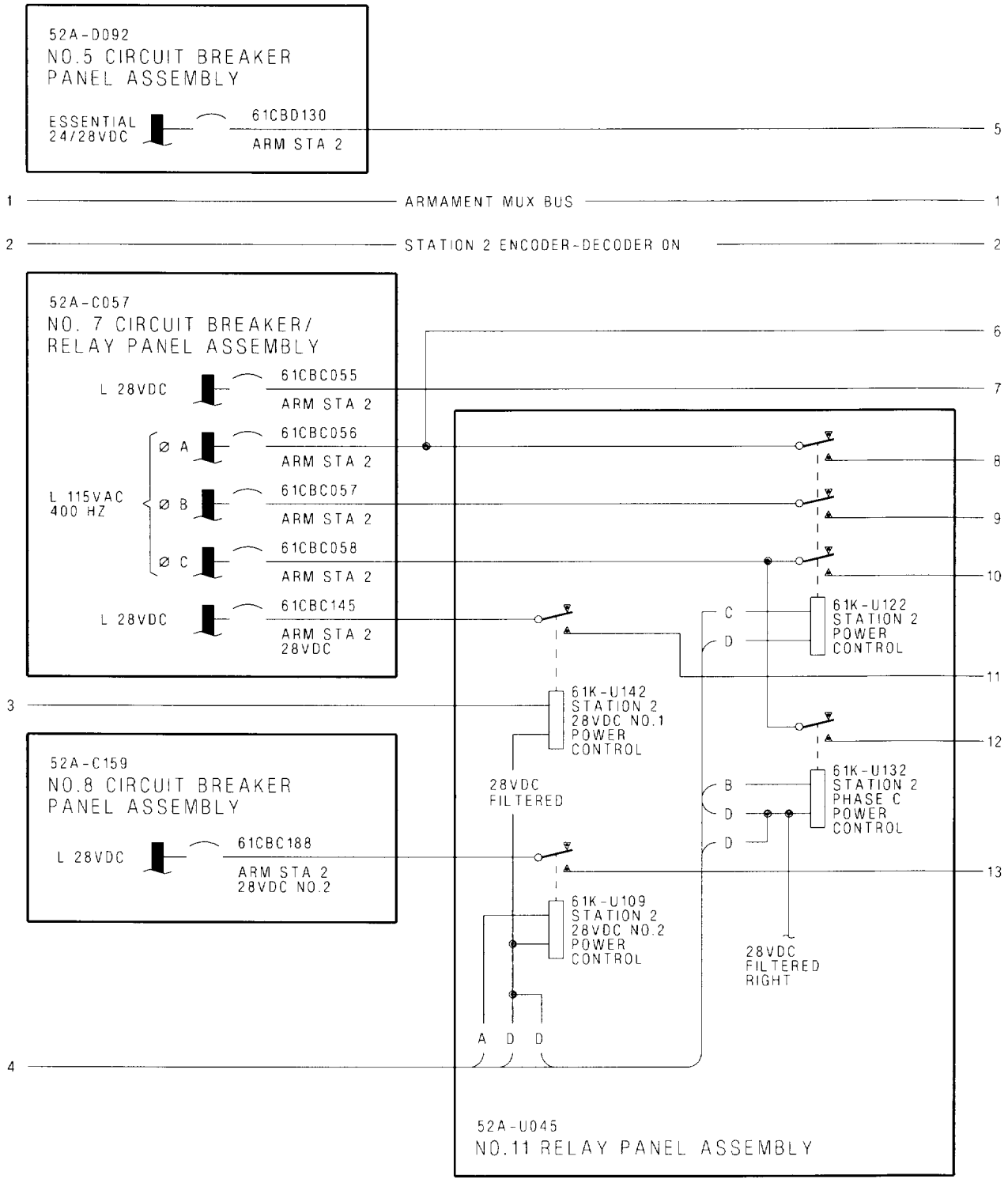
43010102

Figure 1. Weapon Station 1 Power Control Simplified Schematic (Sheet 2)



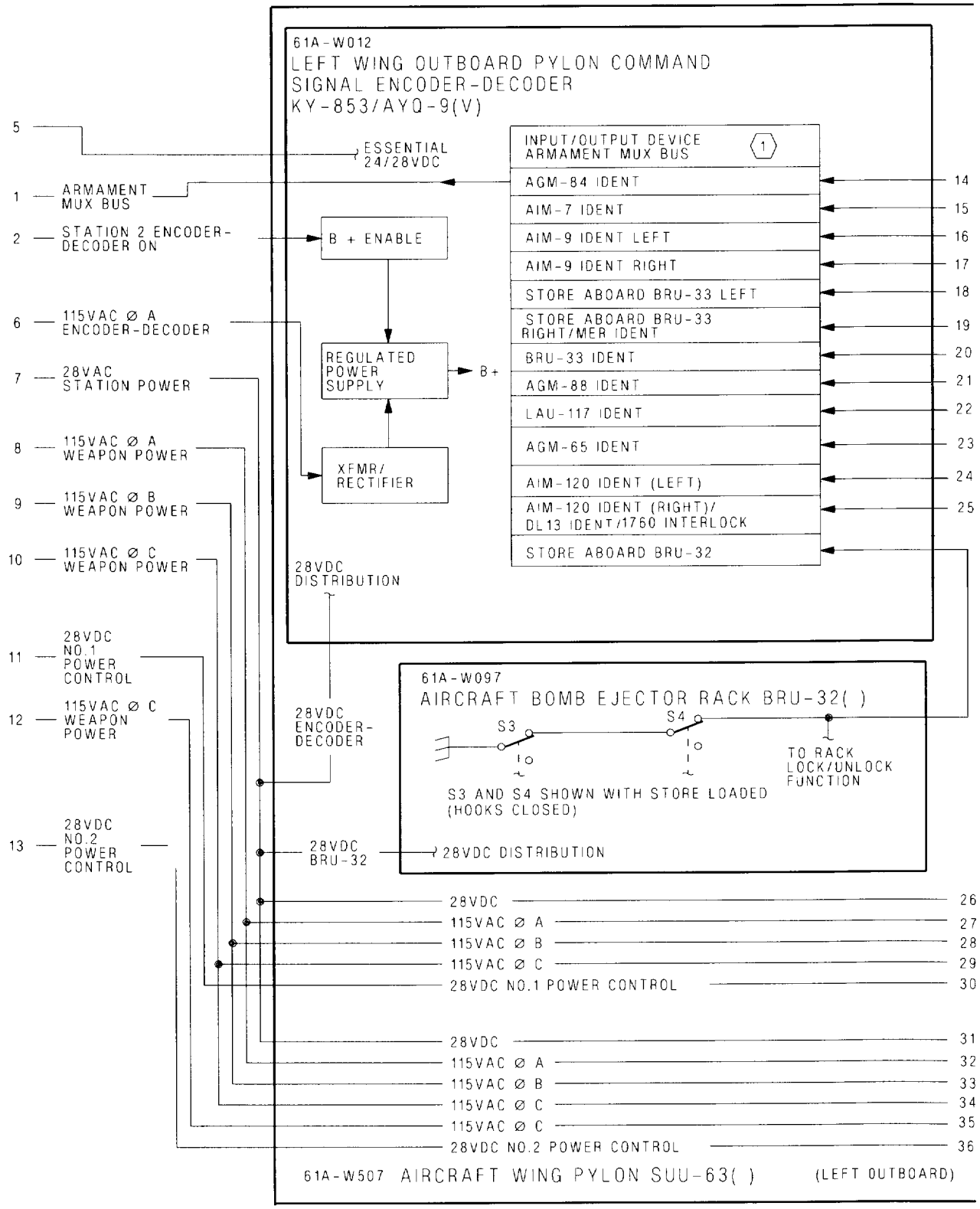
43010201

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 1)



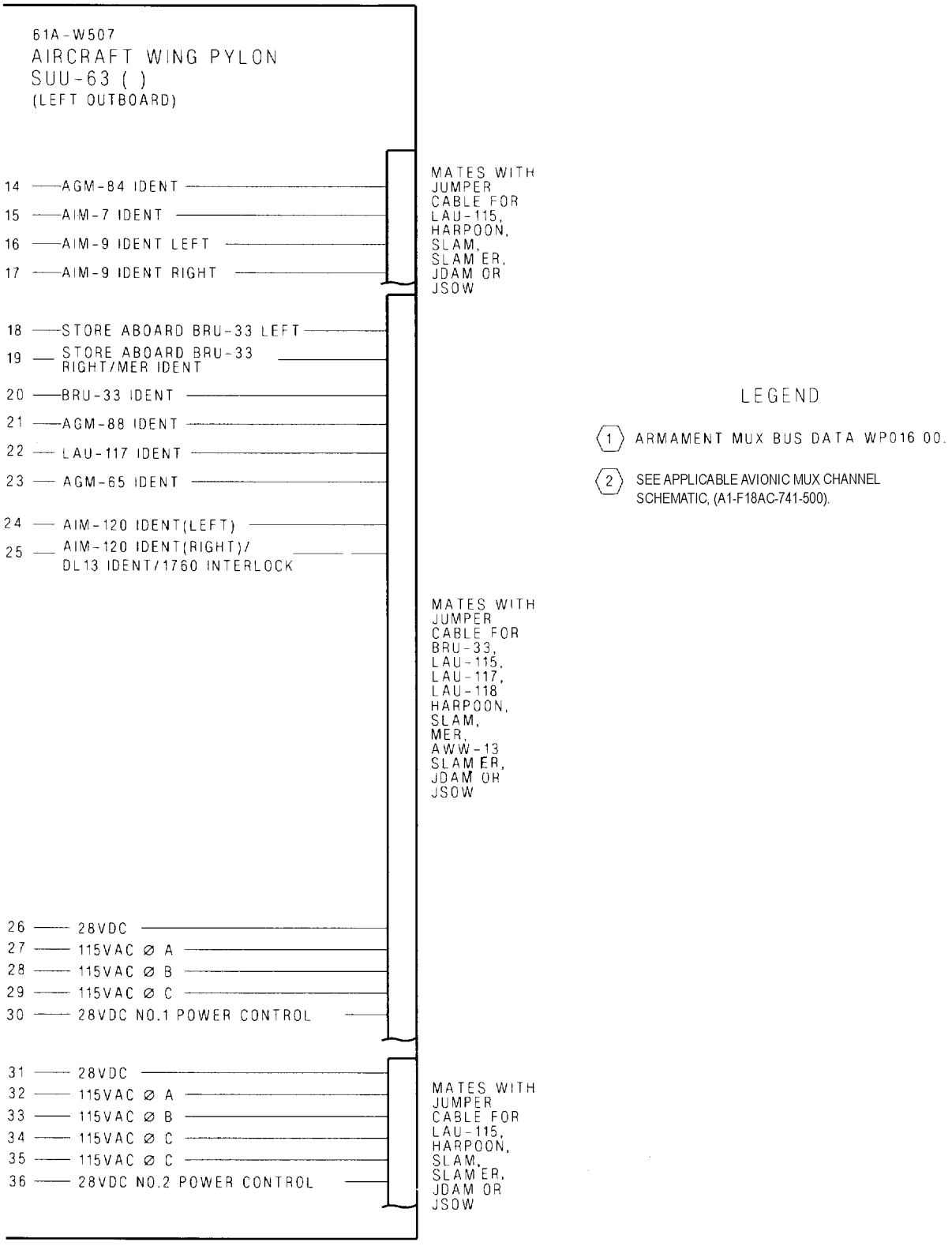
43010202

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 2)



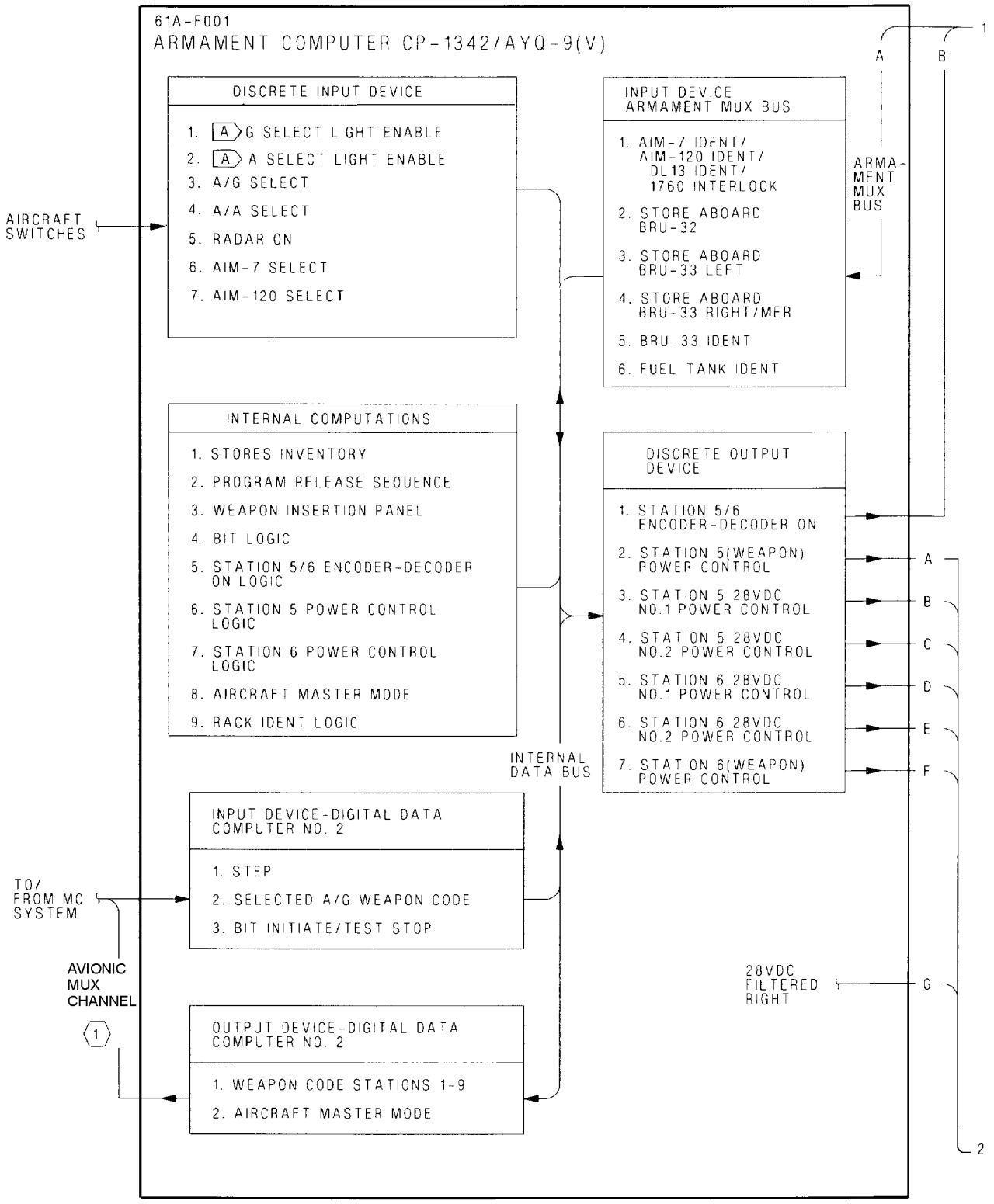
43010203

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 3)



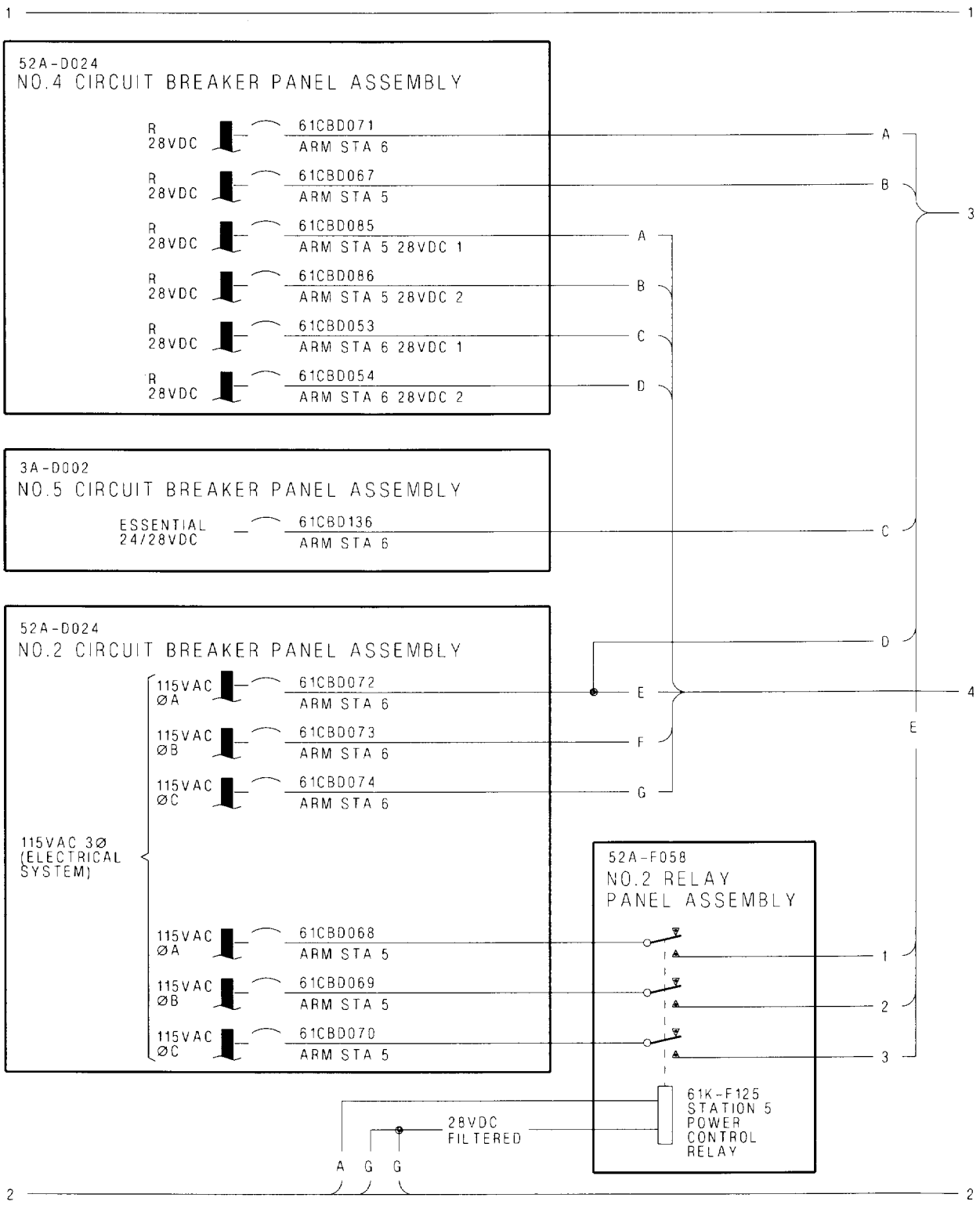
43010204

Figure 2. Weapon Station 2 Power Control Simplified Schematic (Sheet 4)



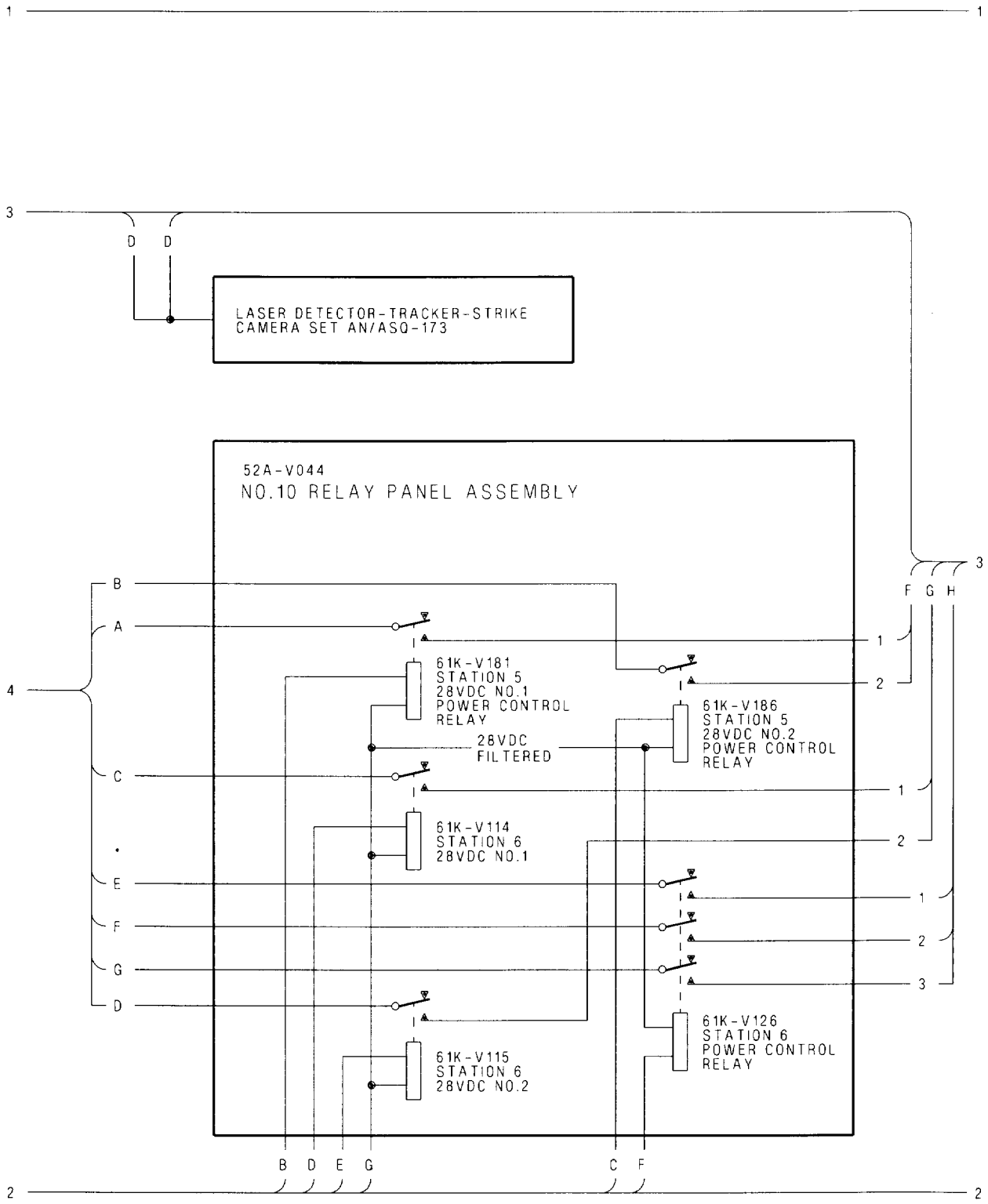
43010301

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 1)



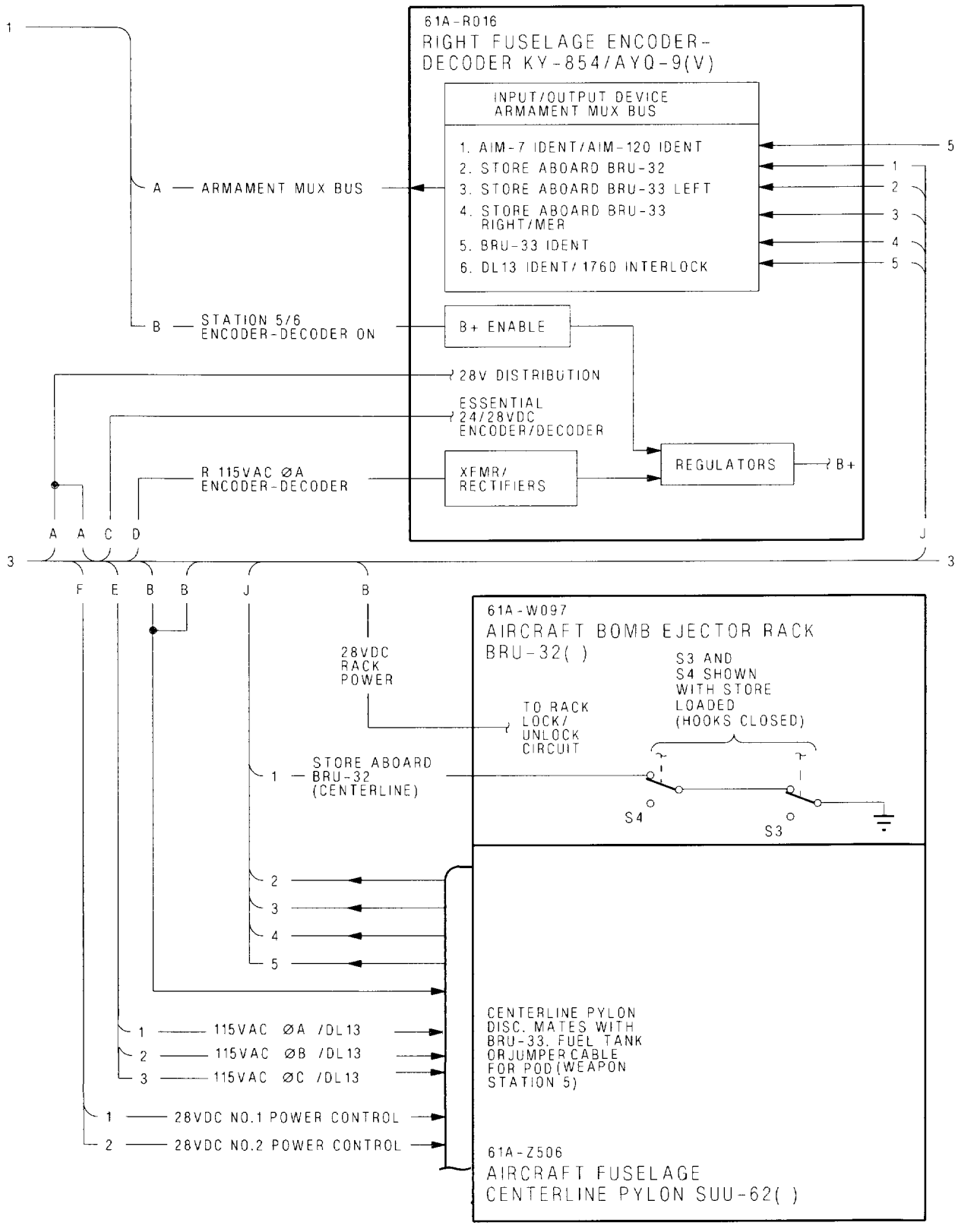
43010302

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 2)



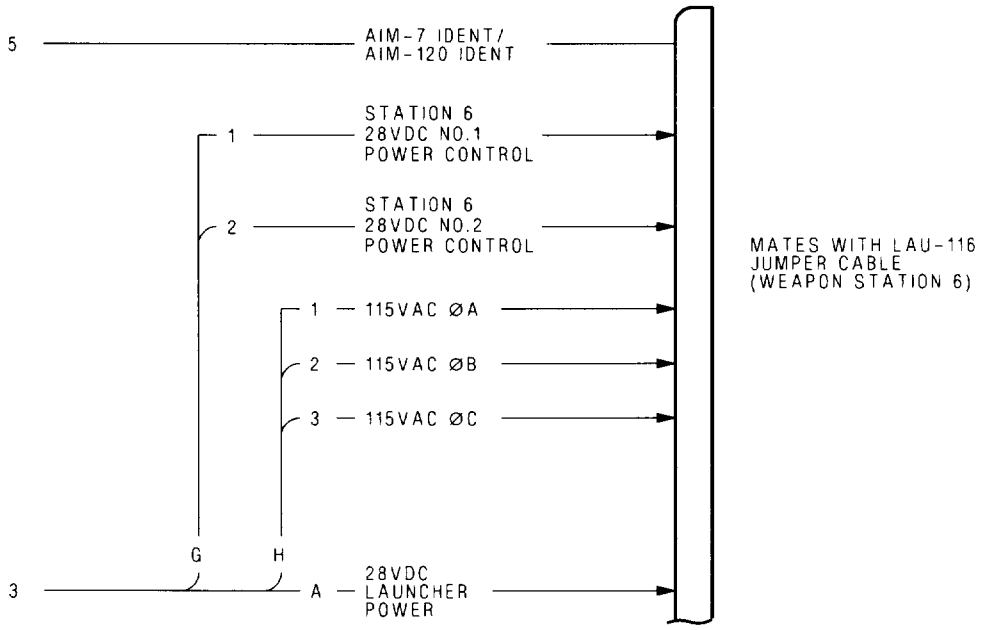
43010303

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 3)



43010304

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 4)



LEGEND

(1) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

43010305

Figure 3. Weapon Station 5 and 6 Power Control Simplified Schematic (Sheet 5)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - ELECTRICAL FUZING

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Electrical Fuzing Simplified Schematic WP045 00
Weapon Control System A1-F18AC-740-500
Electrical Fuzing Schematic WP071 00

Alphabetical Index

Subject	Page No.
Armament Computer Control	2
Electrical Fuzing Displays, Figure 1	5
Electrical Fuzing Operation	2
Electrical Fuzing Power Supply	3
Introduction	2
Mission Computer System Control	2
Weapon Insertion Panel, Figure 2	8
Weapon Interface	3

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 037	16 Feb 84	Deletion of Landing Gear Handle Logic from AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) electrical fuzing operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP045 00 for the simplified electrical fuzing operation schematic. The simplified schematic shows the interface between the Armament Computer, Electrical Fuzing Power Supply PP-6419/AWW-4(V) and the weapon stations.

4. The simplified schematic lists the armament computer function used for electrical fuzing. For detailed electrical fuzing operation, see A1-F18AC-740-500, WP071 00, Electrical Fuzing Schematic.

5. Figure 1 shows displays related to electrical fuzing operation. The weapon insertion panel on the Armament Computer CP-1342/AYQ-9(V) is shown in figure 2.

6. Refer to WP014 00 for component locations.

7. ELECTRICAL FUZING OPERATION.

8. Electrical fuzing is provided for the, AGM 65 maverick, and bombs with electrical fuzes installed. The armament computer provides the control for the Electrical Fuzing Power Supply PP-6419/AWW-4(V). Electrical Fuzing operation in this work package is provided as listed below:

a. mission computer system control

b. armament computer control

c. electrical fuzing power supply

d. weapon interface

9. **MISSION COMPUTER SYSTEM CONTROL.** The mission computer (MC) system provides the program select function for the SMS. When electrical fuzing is selected as part of the program the MC system provides this data to the armament computer to control the electrical fuzing power supply.

10. **ARMAMENT COMPUTER CONTROL.** The armament computer controls the discrete signals to the electrical fuzing power supply for the electrical fuze options. The FUZE and ARMAMENT switch codes on the weapon insertion panel indicate the weapon and fuze types installed on the weapon stations.

11. The MC system sends the armament computer the selected program. When electrical fuzing is selected as part of the program, the armament computer sends the discrete signals to the electrical fuzing power supply.

12. Depending on bomb type, fuze type and delivery attitude the low voltage select and negative polarity select will be enabled as a part of the selected program.

13. Pickle relay enable is provided when A/G ready exists. A/G ready exists when the priority station is selected, program complete exists and the MASTER switch on the master arm control panel assembly is set to ARM.

14. Weapon release is enabled when the weapon release mode command from the MC system exists and the A/G weapon release switch on the aircraft controller grip assembly is pressed.

15. High voltage test exists during BIT. This signal provides the ground for the power on relay in the power supply.

16. AWW-4 on enable provides 28vdc to the power on relay during BIT and when electrical fuzing is part of the selected program.

17. During initiated BIT, the armament computer monitors the high voltage direct current (HVDC) test signal. When the HVDC test falls BIT, the armament computer sends the fail code to the MC system to set the maintenance code for the power supply.

18. The BIT status is also displayed for the power supply. AWW4 on the BIT control display will show the power supply BIT status. When initiated BIT is done, the BIT status message will display GO or DEGD.

19. Simulation (SIM) mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. Electrical fuzing requires master arm logic. In simulation mode, master arm logic is disabled making the power supply inoperative. For detailed description of SIM mode operation refer to WP026 01 in this manual.

20. **ELECTRICAL FUZING POWER SUPPLY.** The electrical fuzing power supply enables ± 195 or ± 300vdc to the weapons that require electrical fuzing. Electrical fuzing power supply operation is provided as listed:

a. power

b. power on relay

c. low voltage select

d. polarity select

e. pickle relay enable

f. high voltage direct current (HVDC) BIT

21. **Power.** The aircraft electrical system provides 115vac 400Hz 3ϕ circuit breaker power for electrical fuzing power supply operations. The power is sent to the regulators when S1 is on and the power on relay is energized.

22. **Power On Relay.** During BIT operation, the armament computer enables the ground to the power on relay.

23. **Power on Relay - 161353 THRU 161987 BEFORE F/A-18 AFC 037.** During normal operation, the ground circuit for the power on relay is interlocked. The ground enable AWW-4 exists when the all gear up and locked relay is energized and the landing gear handle is up.

24. **Power on Relay - 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 037.** During normal operation, ground enable AWW-4 for power on relay exists when the all gear up and locked relay is energized.

25. The 28vdc enable circuit for the relay is controlled by the AWW-4 on enable from the armament computer. The enable discrete is turned on when a weapon is selected that requires electrical fuzing and during BIT when initiate BIT and BIT unique test AWW-4 exist.

26. **Low Voltage Select.** The low voltage select relay provides the 195 and 300vdc option. The armament computer provides 28vdc to the relay when 195vdc is required. When deenergized 300vdc is selected.

27. **Polarity Select.** The polarity select relay provides a positive or negative output voltage select option. The relay is controlled by the armament computer. When energized, the output is negative.

28. **Pickle Relay Enable.** The pickle relay provides the electrical fuzing voltage output to the weapon. The ground and 28vdc enable to the relay are controlled by the armament computer. When energized a delay circuit holds the relay energized for 1 second. The relay is controlled by the pickle relay enable and weapon release discretes.

29. **HVDC BIT.** During BIT the power supply provides the HVDC output to the armament computer. The HVDC is a voltage sample of the power supply output.

30. **WEAPON INTERFACE.** Electrical fuzing is provided for weapon stations 2, 3, 5, 7, and 8. Because of the different type of A/G weapons which need electrical fuzing, this signal is supplied through different combinations of fuzing adapters and racks/launchers, depending on the weapon type loaded. The weapons which require electrical fuzing are listed as listed below:

a. Bombs

b. AGM-65 (Maverick)

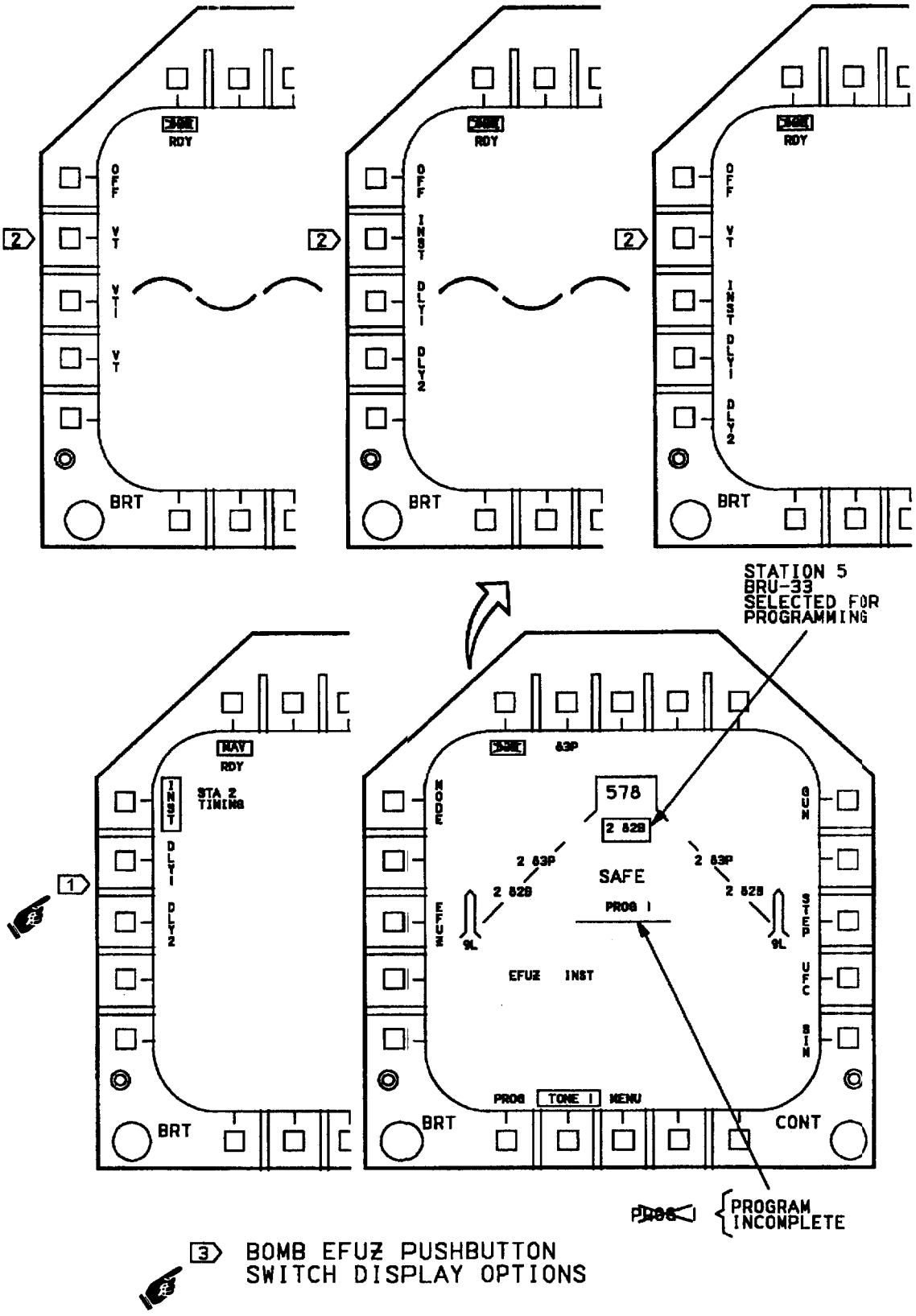
c. JDAM (AFTER AFC 253 OR 292)

31. **Bombs.** Single bomb fuzing is provided for each of the pylons on weapon stations 2, 3, 5, 7, and 8. The electrical fuzing signal is sent through the pylons to the Aircraft Bomb Ejector Racks BRU-32. The signal is not sent to the weapon until the BRU-32 hooks are open. With the hooks open, the fuzing voltage is sent to the bomb by way of the arming safety switch Mk-122.

32. Bomb types that require electrical fuzing can be installed on the Aircraft Bomb Ejector Racks BRU-33. The electrical fuzing signal is sent through the pylons to the BRU-33. The signal is sent simultaneously to both the left and right BRU-33 ejector unit hook sensing switches. The ejector units each have two receptacles. Only one receptacle is used for each bomb. Each ejector unit operates the same, when the hooks open the electrical fuzing contacts on the hook sensing switches close and the electrical fuzing signal is sent directly to the weapon.

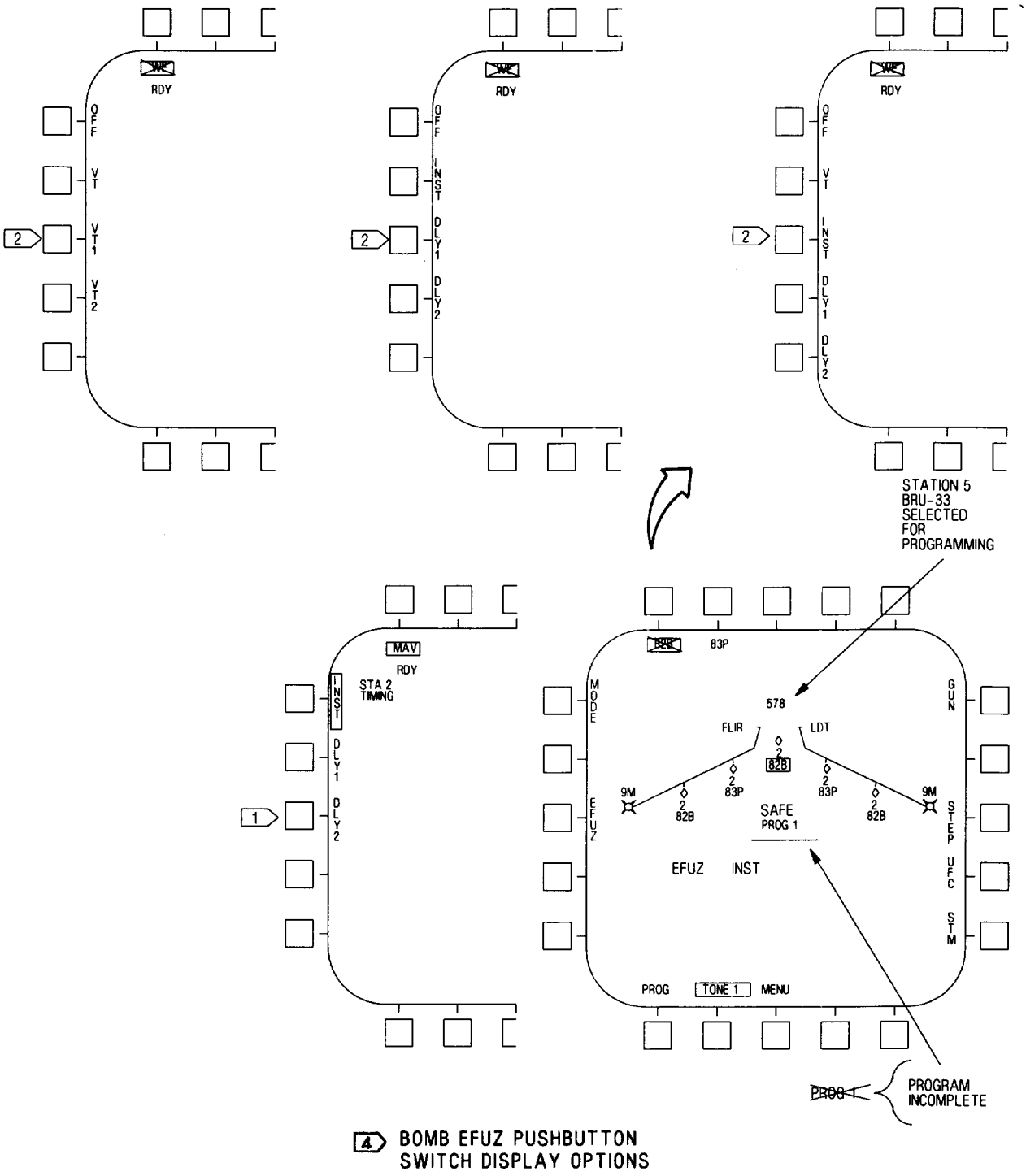
33. **AGM-65 (Maverick).** The Maverick can be installed on weapon stations 2, 3, 7, and 8. The weapon interface for electrical fuzing is similar to bombs, however an Aircraft Guided Missile Launcher LAU-117( ) is connected to the wing pylon BRU-32. This launcher receives the signal from the pylon without passing through the BRU-32. The electrical fuzing signal is routed through the pylon to the launcher. In the launcher the fuzing signal becomes a Warhead Fuze Delay which is sent to the Maverick.

34. **JDAM - AFTER AFC 253 OR 292.** The JDAM weapon can be installed on weapon stations 2, 3, 7, or 8. The electrical fuzing voltage is routed through the BRU-32 bomb ejector rack by way of the hook sensing switch and returned to the pylon wiring for later routing to the JDAM weapon electrical connector using the JDAM adapter. The hook sensing switch acts as a safety device by preventing application of fuzing voltage until bomb ejector rack hook has been opened.



04400101

Figure 1. Electrical Fuzing Displays (Sheet 1)



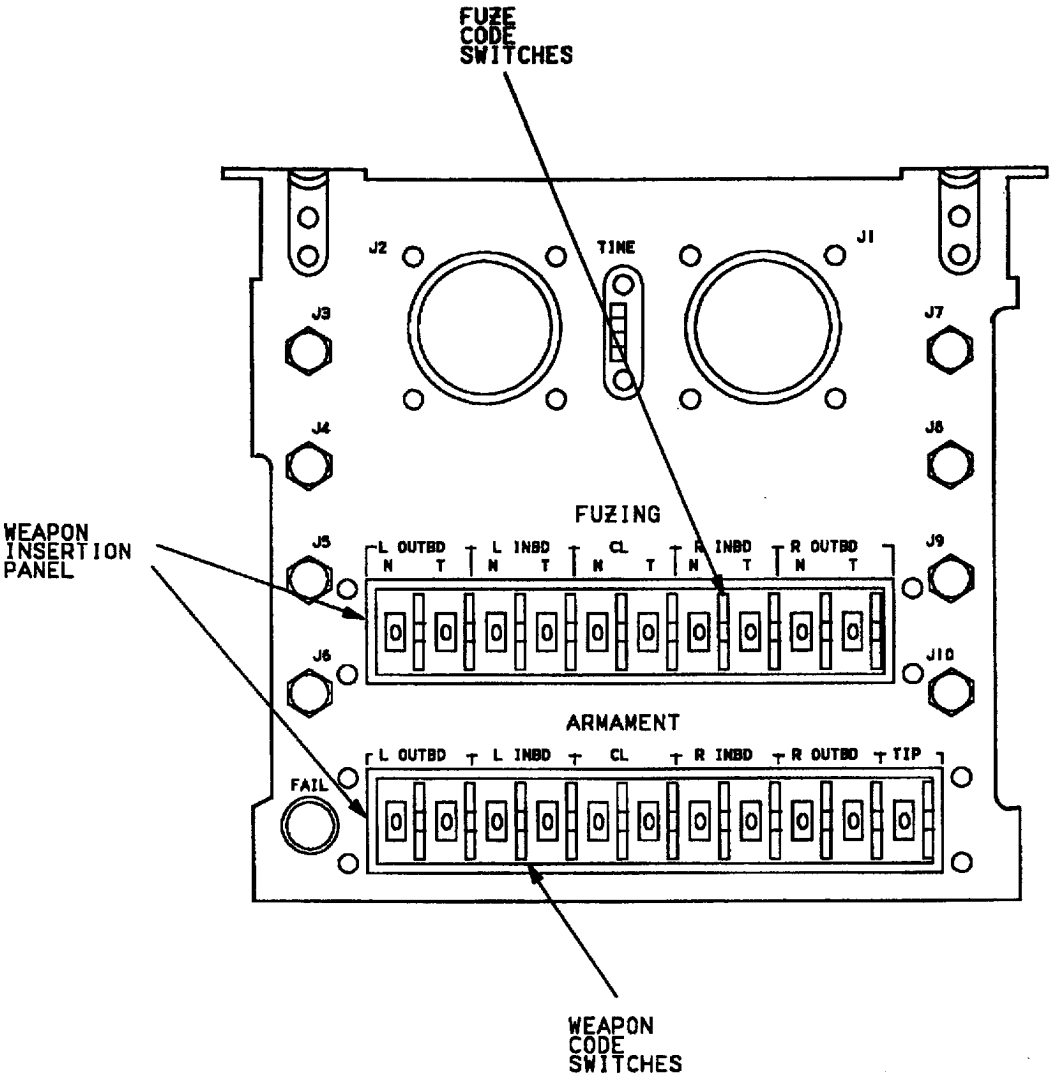
04400102

Figure 1. Electrical Fuzing Displays (Sheet 2)

LEGEND

1. MAVERICK ELECTRICAL FUZE OPTIONS.
2. BOMB ELECTRICAL FUZE OPTIONS.
3. 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.
4. 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

Figure 1. Electrical Fuzing Displays (Sheet 3)



044002

Figure 2. Weapon Insertion Panel

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - ELECTRICAL FUZING SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

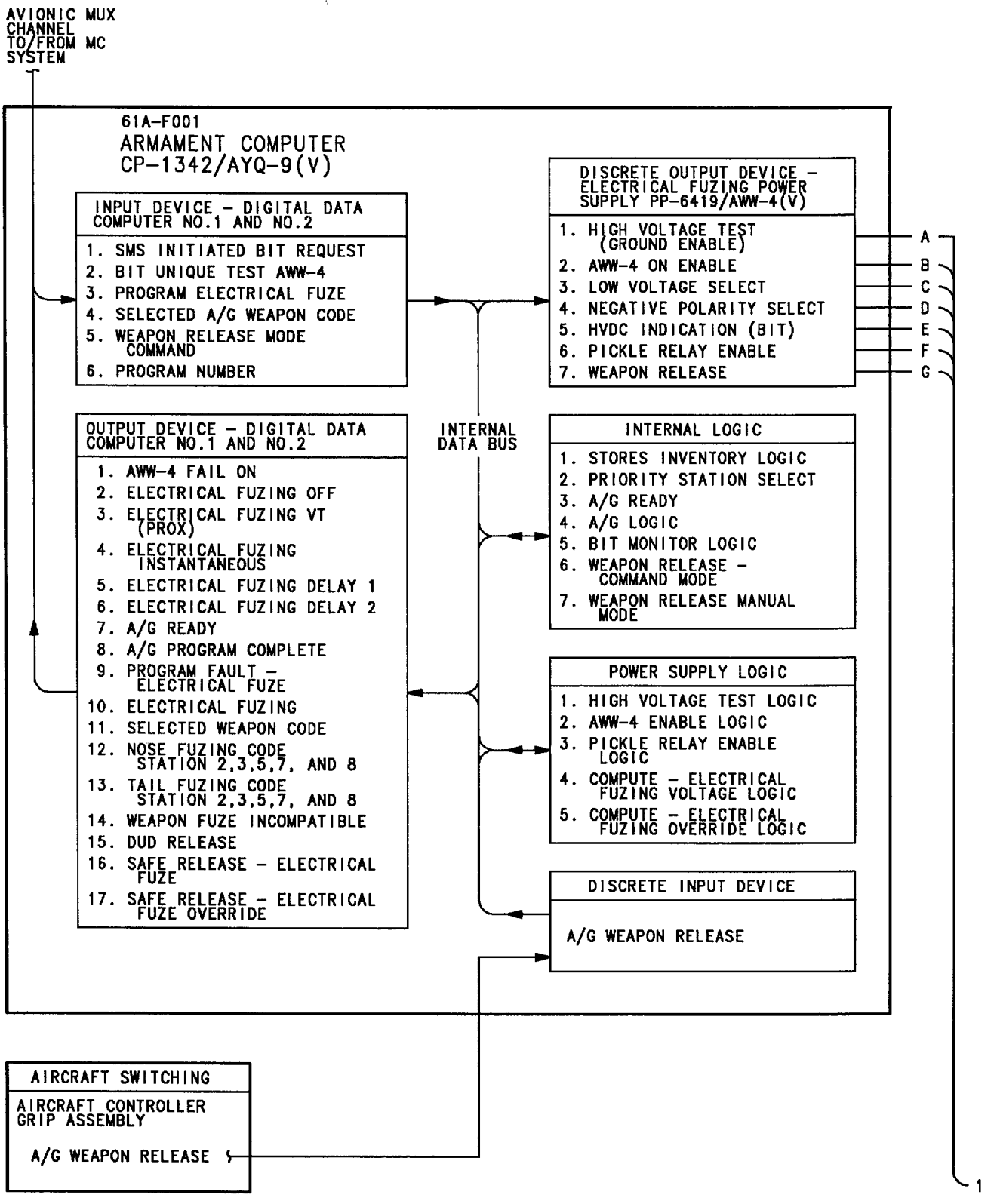
Subject	Page No.
Electrical Fuzing Simplified Schematic, Figure 1	2
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 037	16 Feb 84	Deletion of Landing Gear Handle Logic from AWW-4 Electrical Fuzing System (ECP MDA-F18-00113)	1 Nov 84	-
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

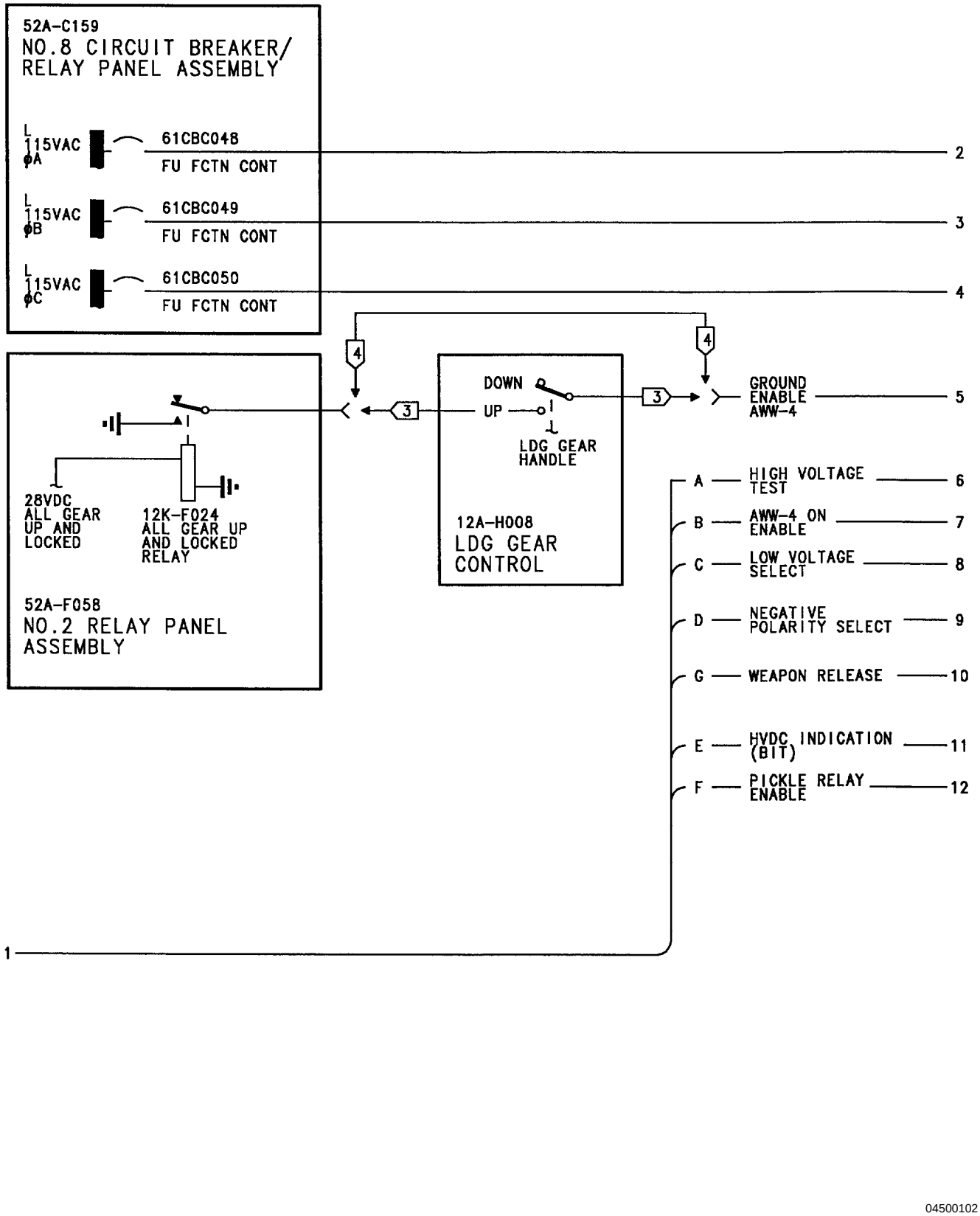
1. INTRODUCTION.

2. The schematic in this work package supports the data in WP044 00.



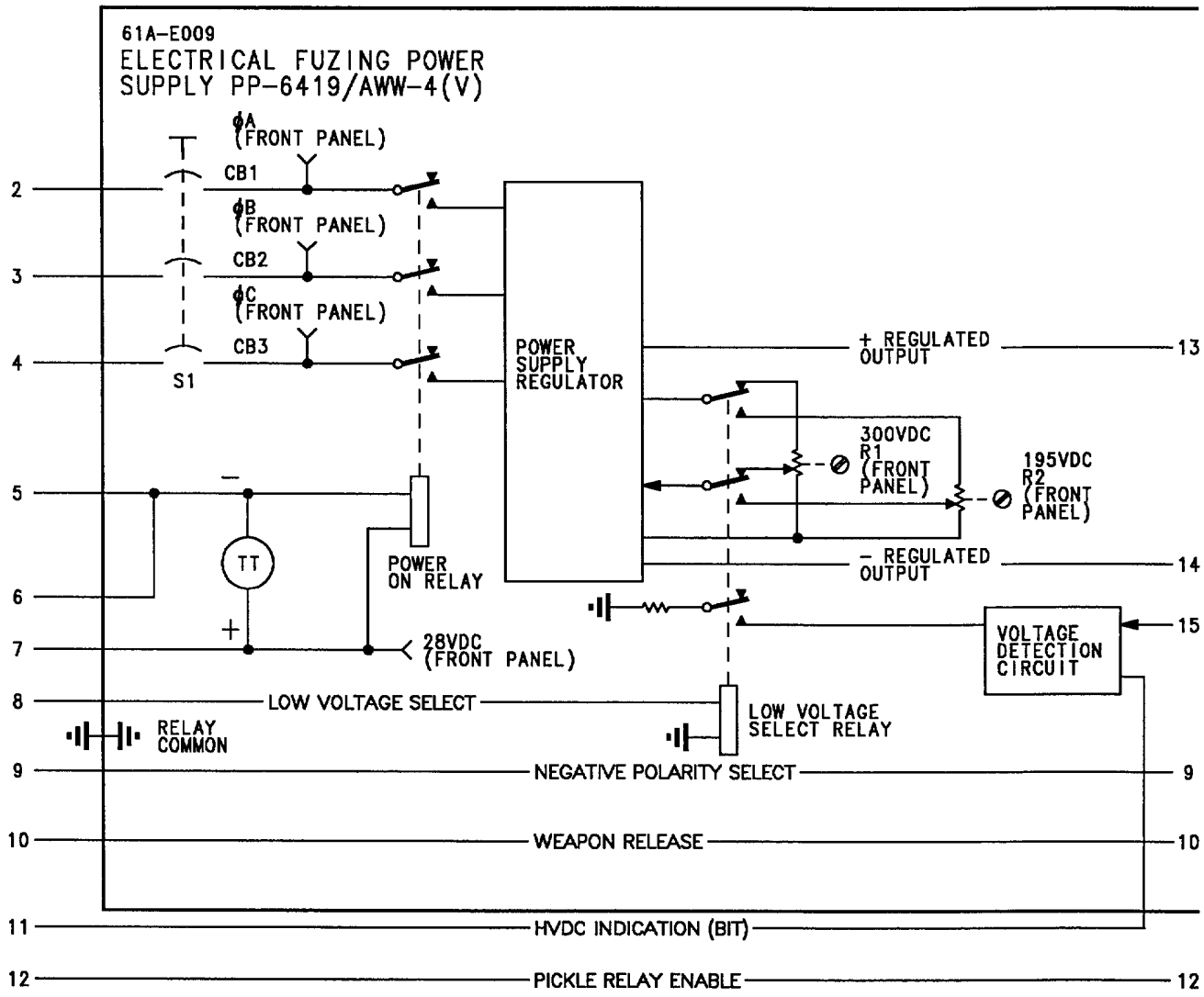
04500101

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 1)



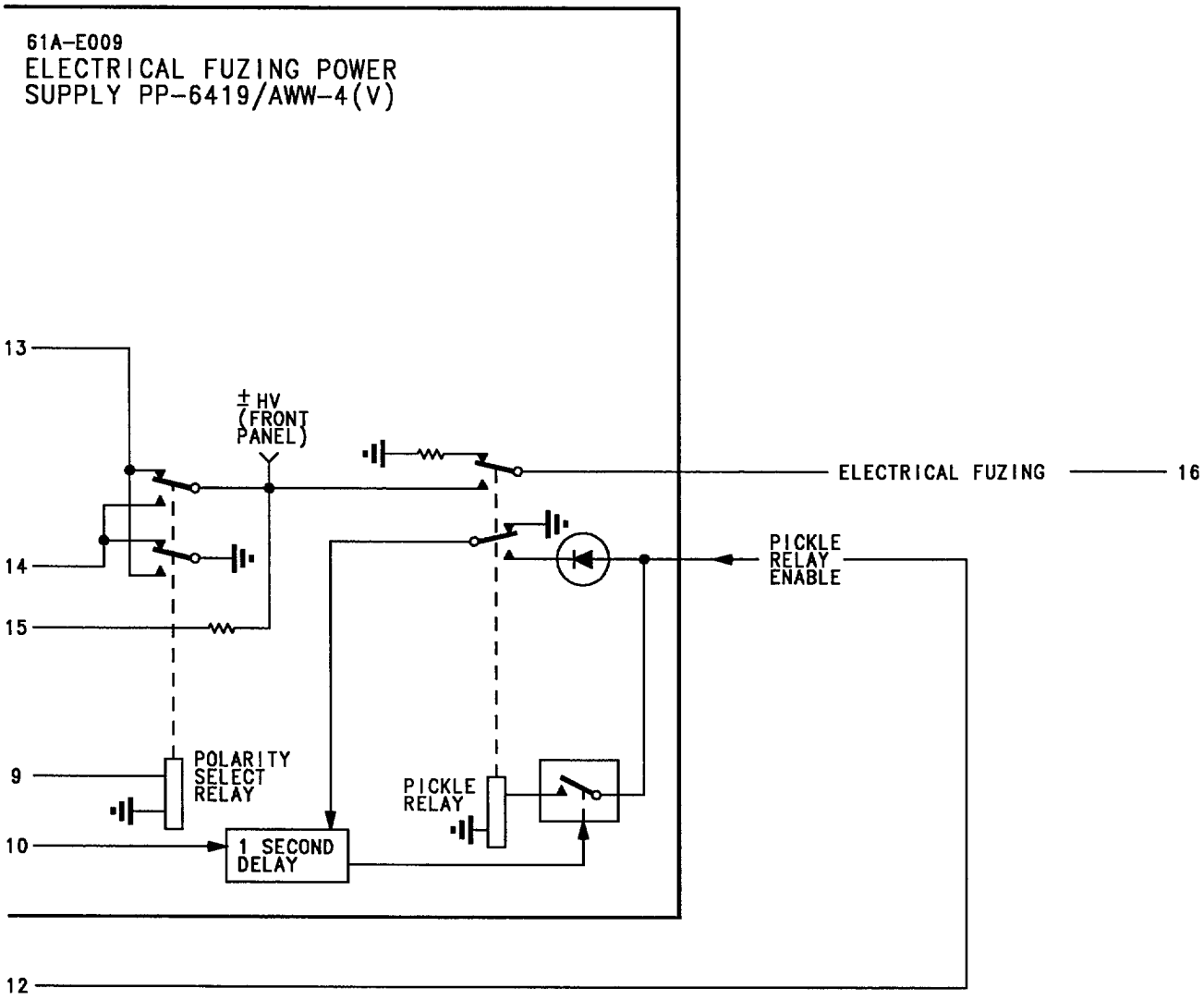
04500102

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 2)



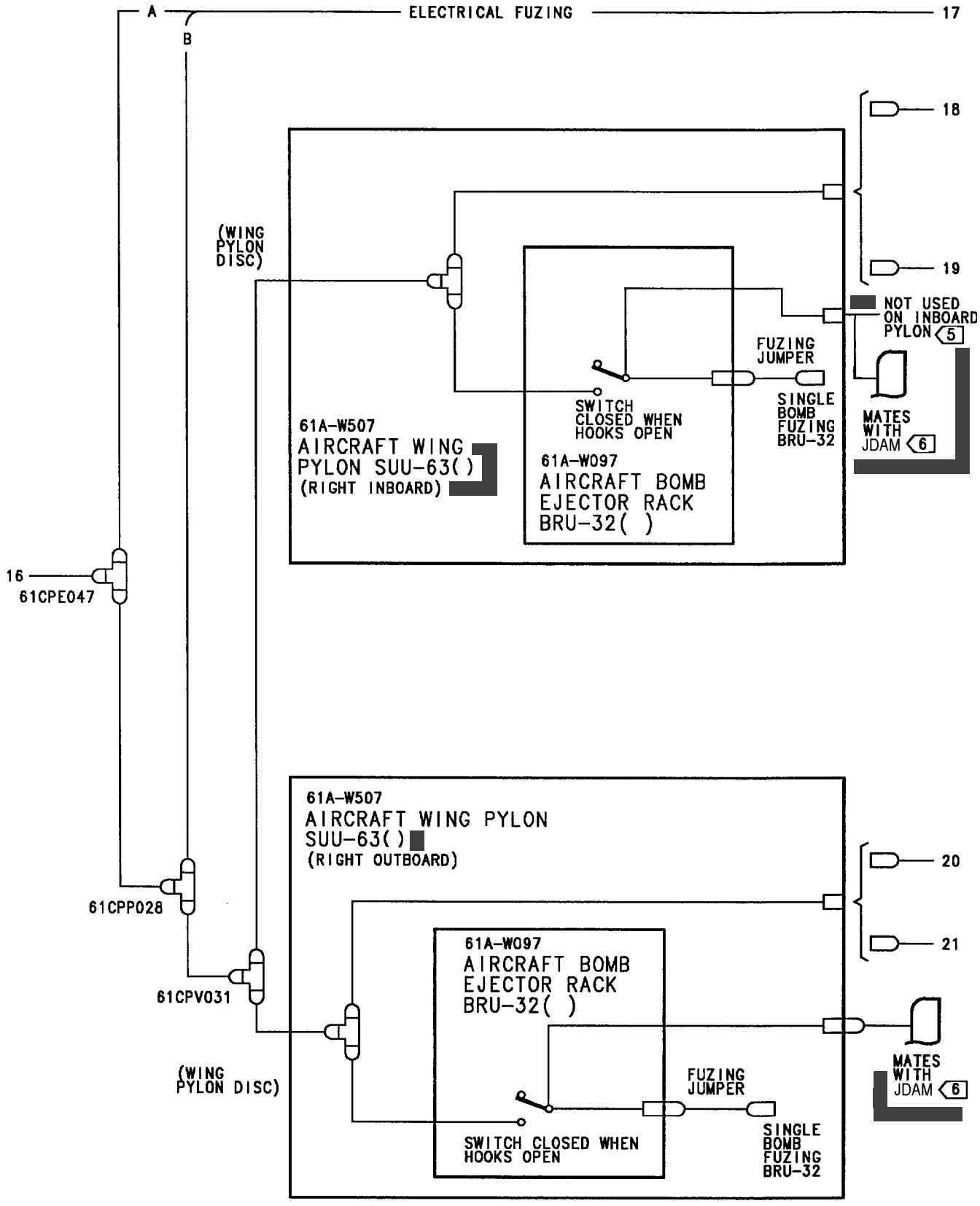
04500103

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 3)



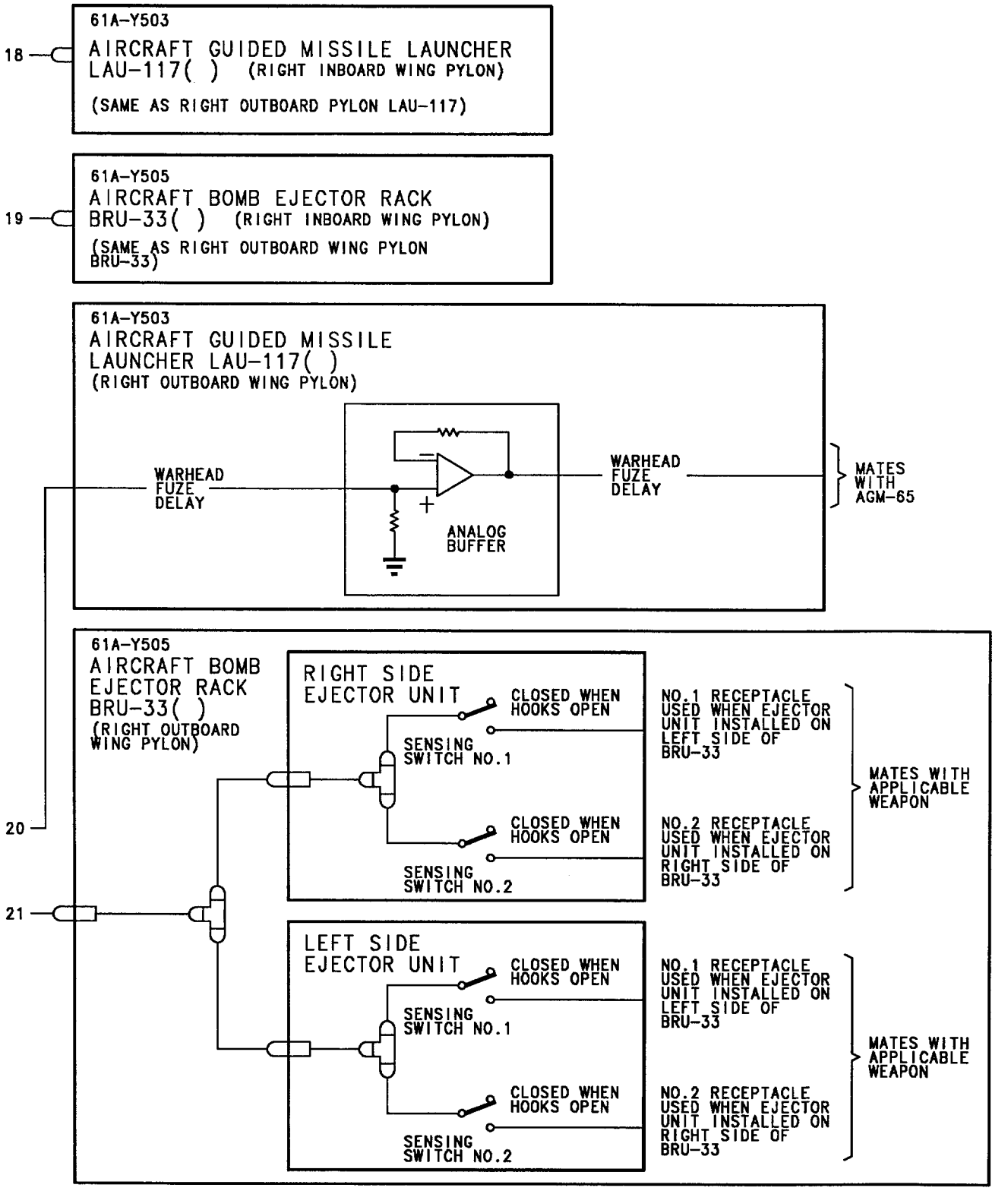
04500104

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 4)



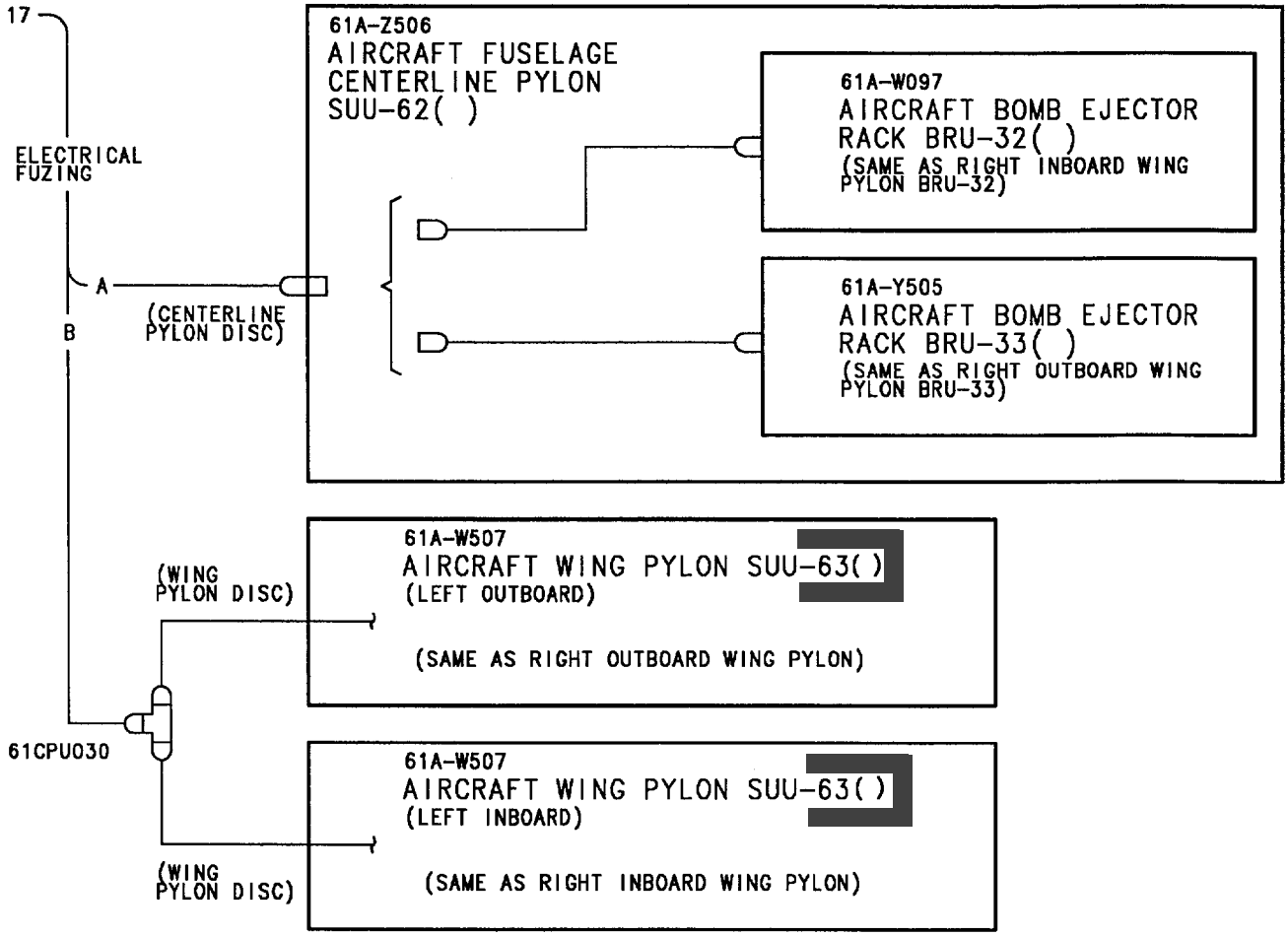
04500105

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 5)



04500106

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 6)



LEGEND

1. ABBREVIATIONS: SEE WP002 01.
2. NONSTANDARD SYMBOLS: SEE WP002 01.
3. 161353 THRU 161987 BEFORE F18 AFC 037.
4. 162394 AND UP; ALSO 161353 THRU 161987 AFTER F18 AFC 037.
5. 161353 THRU 163175 BEFORE F18 AFC 253 OR F18 AFC292.
6. 161353 THRU 163175 AFTER F18 AFC 253 OR F18 AFC292 .

04500107

Figure 1. Electrical Fuzing Simplified Schematic (Sheet 7)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - MECHANICAL FUZING

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Reference Tables WP015 00
Stores Management System Mechanical Fuzing Simplified Schematic WP045 02
Weapon Control System A1-F18AC-740-110
Stores Management System Conventional Bomb Program Select Operation WP051 03
Weapon Control System A1-F18AC-740-500
Mechanical Fuzing Schematic WP072 00

Alphabetical Index

Subject	Page No.
Armament Computer Control	2
Introduction	1
Mechanical Fuzing, BRU-32( ) Arming Units, Figure 3	7
Mechanical Fuzing, BRU-33( ) Arming Units, Figure 4	8
Mechanical Fuzing Displays, Figure 1	4
Mechanical Fuzing Operation	2
Mission Computer System Interface	2
Weapon Insertion Panel, Figure 2	6
Weapon Interface	3

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) mechanical fuzing operation is provided in this work package (WP). Additional operation WPs are listed in WP001 00.

3. Refer to WP045 02 for the simplified mechanical fuzing operation schematic.

4. Figure 1 shows displays related to mechanical fuzing operation. The weapon insertion panel on the Armament Computer CP-1342/AYQ-9(V) is shown in figure 2. Figure 3 and 4 show Aircraft Bomb Ejector Rack BRU-32( ) and BRU-33( ) arming units.

5. Detailed mechanical fuzing operation is shown in the Mechanical Fuzing Schematic (A1-F18AC-740-500, WP072 00).

6. Refer to WP014 00 for component locations.

7. MECHANICAL FUZING OPERATION.

8. The SMS provides the mechanical fuzing function when bombs are loaded on the pylon weapon stations, the bomb has a nose and/or tail mechanical fuze installed, and the weapon code and fuze code have been set in on the WEAPON INSERTION PANEL. Refer to WP015 00 for store codes and fuze types and codes.

9. **MECHANICAL FUZING ARMING UNITS**. Two arming units and two positive arming latches are provided on the BRU-32. Four arming units and four positive arming latches are provided on the BRU-33. See figure 3 and 4. Three arming units are provided on the BRU-42. Six arming units are provided on the MER and the BRU-41. No positive arming latches are provided on the MER, BRU-41 or the BRU-42.

10. **BRU-32( ) AND BRU-33( ) NOSE AND TAIL SOLENOID ARMING UNITS.** When the arming solenoid is not energized, the solenoid spring holds the arming unit ball bearing against the base plate at 10-15 pounds static load. The MAU-182 swivel assembly ring can be installed. When the arming unit solenoid energizes, the ball bearing is held against the base plate at 150 to 200 pounds load.

11. **BRU-32( ) AND BRU-33( ) NOSE AND TAIL ZERO RETENTION FORCE (ZRF) ARMING UNITS.** When the ZRF arming unit is not energized, the swivel assembly ring can be installed by moving the plunger lever so the plunger shaft is in the open position. Pressing the detent button releases the plunger shaft to the closed position to hold the swivel assembly ring. When the ZRF arming unit is energized the plunger lever can not be moved to the open position.

12. The positive arming latch is manually opened to install the MAU-182 swivel assembly metal ring. When released, the latch spring returns the latch and secures the metal ring.

13. Bomb and fuze combinations and arming wire installation is provided in the Weapons/Stores Loading Manual, A1-F18AE-LWS-000.

14. When bombs with mechanical fuzes are loaded on weapon stations, an arming wire is installed from the nose (tail) mechanical fuze arming vane through the bomb ejector rack nose (tail) arming solenoid actuator or positive arming latch MAU-182 ring and back to the body of the bomb. The arming wire keeps the vanes from rotating in the aircraft wind stream and arming the fuze.

15. When the weapon delivery fuze option is selected or a stored bomb delivery program is selected on the left Digital Display Indicator IP-1317( ) (LDDI) the nose and/or tail arming solenoids are energized and the solenoid actuator holds the wire to the bomb rack. When the arming wire is inserted into the positive arming latch, the arming latch holds the arming wire. When the bomb drops the arming wire is pulled from the bomb arming vane allowing the vanes to rotate and activate the bomb fuze. Refer to WP015 00 for Conventional Weapon Delivery/Fuze Options.

16. During selective jettison/auxiliary release the nose and tail arming solenoids are not energized to provide release of unarmed bombs. When the arming wire is inserted into the positive arming latch, the arming wire is held and armed bombs are jettisoned.

17. Mechanical fuzing option is provided as listed below:

a. mission computer system interface

b. armament computer control

c. weapon interface

18. **MISSION COMPUTER SYSTEM INTERFACE.** The mission computer (MC) system provides interface between the LDDI and the SMS. The MC system receives mechanical fuze options and weapon codes from the armament computer on the avionic mux bus and displays them on the LDDI.

19. When mechanical fuzing is selected on the LDDI as a part of the weapon delivery program, the MC system provides the selected mechanical fuzing options to the armament computer. If all selections are compatible with weapons and fuzes loaded, an A/G program complete is received from the armament computer and displayed on the LDDI.

20. **ARMAMENT COMPUTER CONTROL.** The armament computer sends mechanical fuze codes and options to the MC system and mechanical fuze commands to the arming solenoids.

21. The FUZE and ARMAMENT switch codes on the weapon insertion panel indicate the weapon and fuze types installed on the weapon stations, and are routed to the stores inventory logic and A/G program logic modules in the armament computer.

22. The armament computer sends the mechanical fuzing options to the MC system and receives the selected mechanical fuzing from the MC system. When the selected mechanical fuze options are received from the MC system the armament computer sends the correct nose, tail or nose/tail arming signals to the arming solenoids.

23. The A/G ready signal is sent to the MC system when the priority station is selected, program complete exists, A/G aircraft master mode select exists, and the MASTER switch on the master arm control panel assembly is set to ARM.

24. **SIMULATION MODE (SIM)** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. Mechanical fuzing requires master arm logic. In simulation mode, master arm logic is disabled making mechanical fuzing inoperative. For detailed description of SIM mode operation, refer to WP026 01 in this manual.

25. **WEAPON INTERFACE.** Mechanical fuzing is provided for weapon stations 2, 3, 5, 7 and 8. There are different types of racks which need mechanical fuzing signals, listed below:

a. BRU-32

b. BRU-33

c. MER/BRU-41 (Multiple ejector rack/Improved multiple ejector rack)

d. BRU-42 (Improved triple ejector rack)

26. **BRU-32.** Single bomb fuzing is provided for each of the encoder-decoders for weapon stations 2, 3, 5, 7, and 8. The encoder-decoders send the mechanical fuzing signal to the BRU-32 rack. The signal energizes the applicable arming solenoid(s). The BRU-32 has arming latches for positive arming of the bombs.

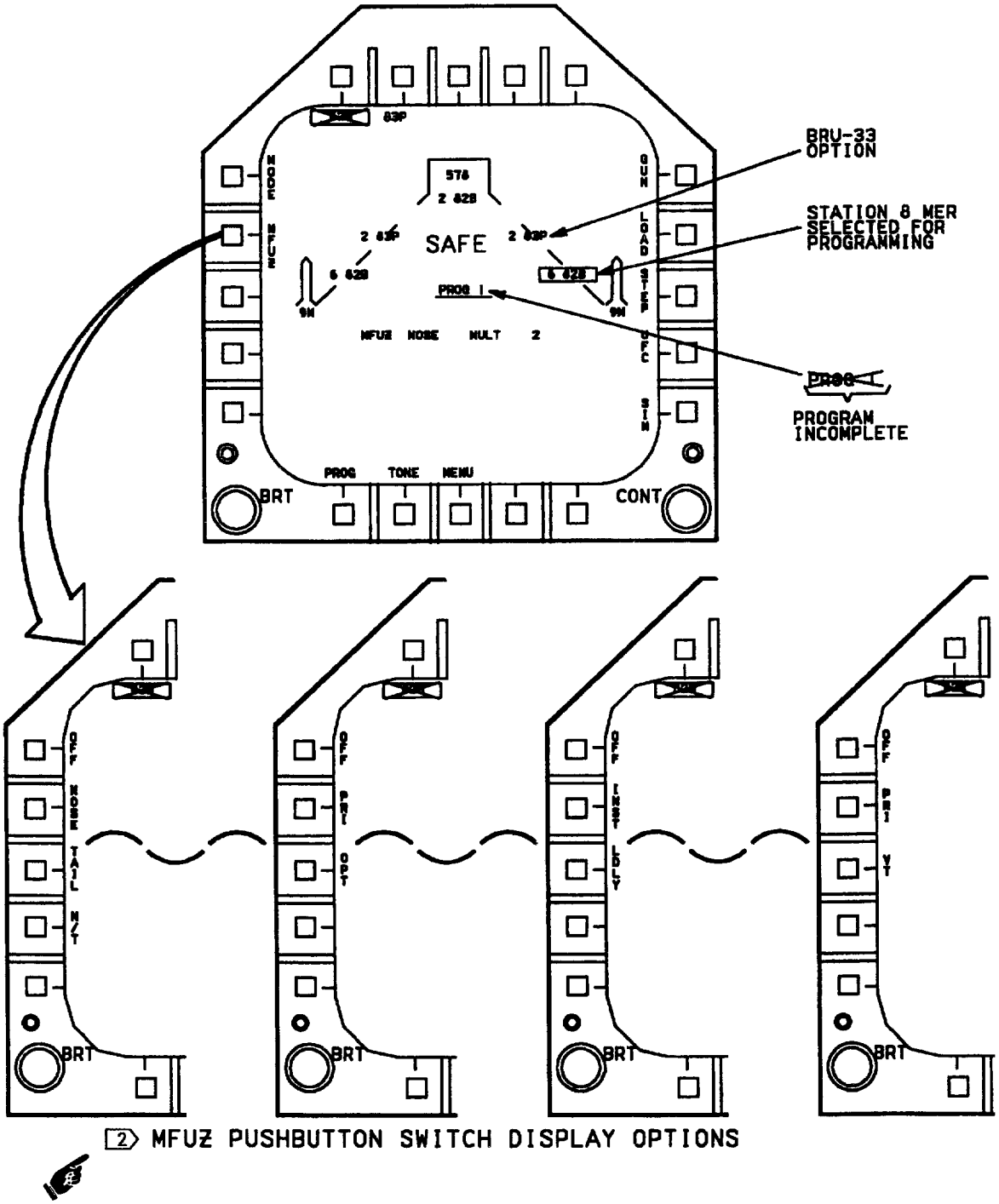
27. **BRU-33.** Bomb fuzing is provided for each of the encoder-decoders for weapon stations 2, 3, 5, 7 and 8. The encoder-decoders send the mechanical fuzing signal simultaneously to both the left and right BRU-33 rack ejector units. The signal energizes the applicable arming solenoid(s). Both bombs must have the same fuze types installed. The BRU-33 has arming latches for positive arming of the bombs.

28. **MER/BRU-41.** The MER/BRU-41 can carry up to six bombs. The bombs must all have the same fuze types installed. There is only mechanical fuzing available for bombs loaded on the MER/BRU-41. There are no positive arming latches on the MER/BRU-41.

29. The arming signal(s) are provided to the encoder-decoders for weapon stations 2, 3, 5, 7 and 8. The encoder-decoders send the arming signal(s) to the MER/BRU-41. The signal energizes the applicable arming solenoid(s).

30. **BRU-42.** The BRU-42 can carry up to three bombs. The bombs must all have the same fuze types installes\d. There is only mechanical fuzing available for bombs loaded on the BRU-42. There are no positive arming latches on the BRU-42.

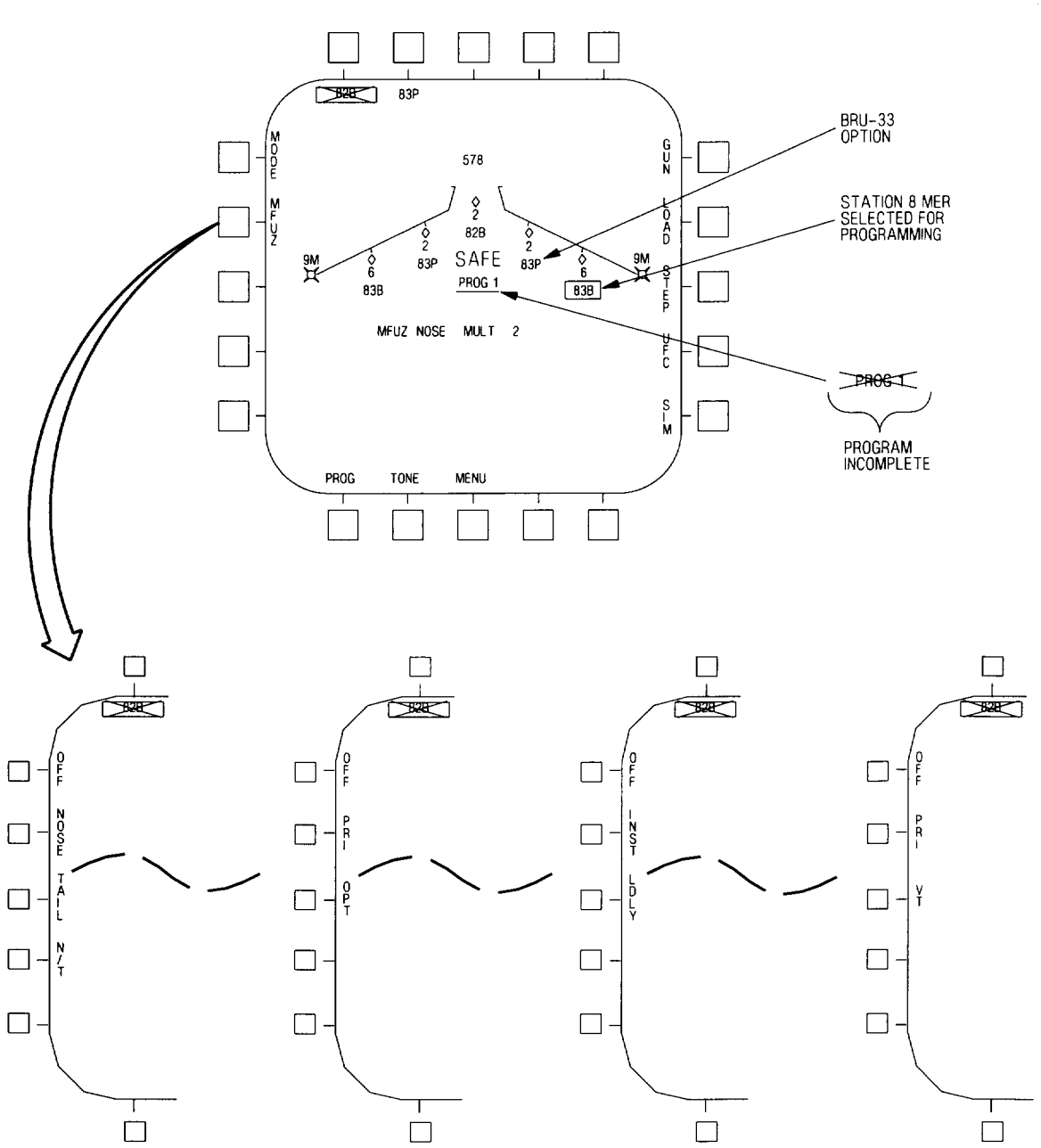
31. The arming signal(s) are provided to the encoder-decoders for weapon stations 2, 3, 5, 7 and 8. The encoder-decoders send the arming signal(s)to the BRU-42. The signal energizes the applicable arming solenoid(s).



2 MFUZ PUSHBUTTON SWITCH DISPLAY OPTIONS

45010101

Figure 1. Mechanical Fuzing Display (Sheet 1)



3 MFUZ PUSHBUTTON SWITCH DISPLAY OPTIONS

LEGEND

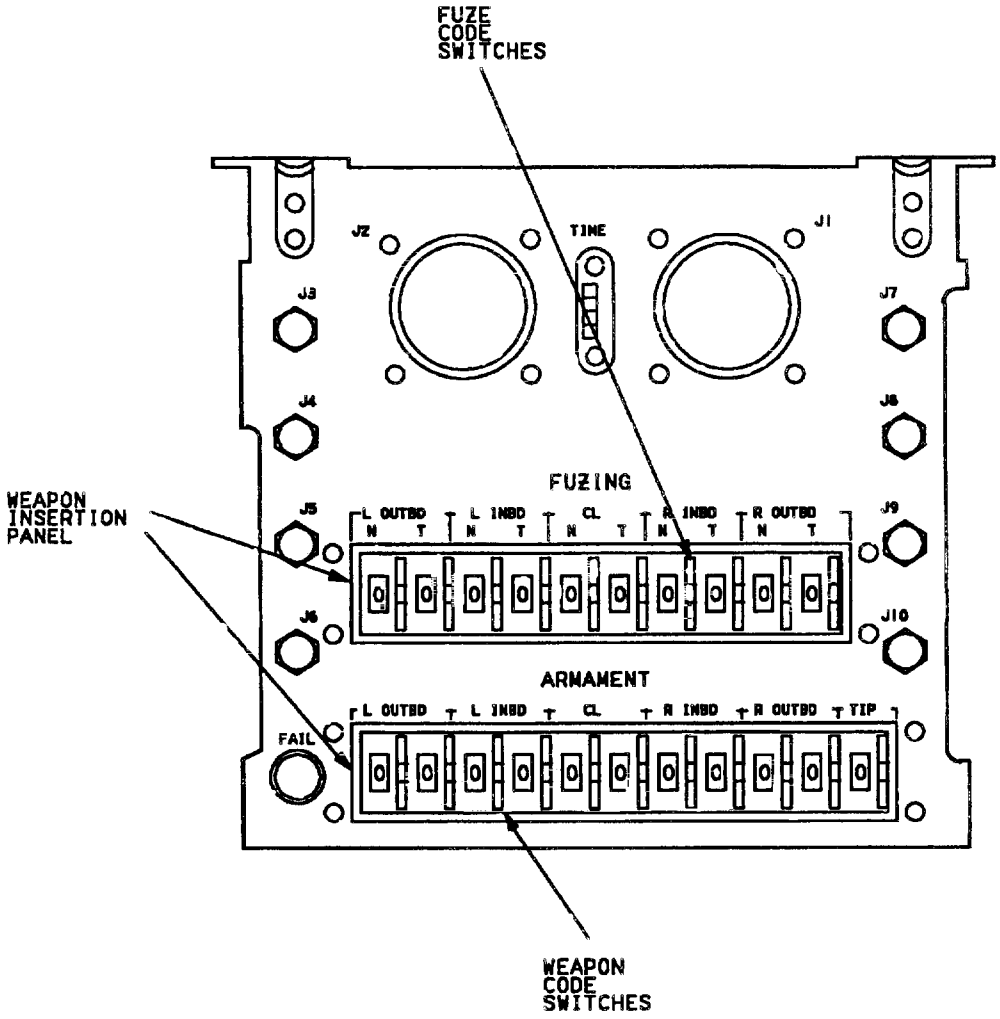
1. NONSTANDARD ABBREVIATION AND SYMBOLS: SEE WP002 01.

2 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

3 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

45010102

Figure 1. Mechanical Fuzing Displays (Sheet 2)



04501002

Figure 2. Weapon Insertion Panel

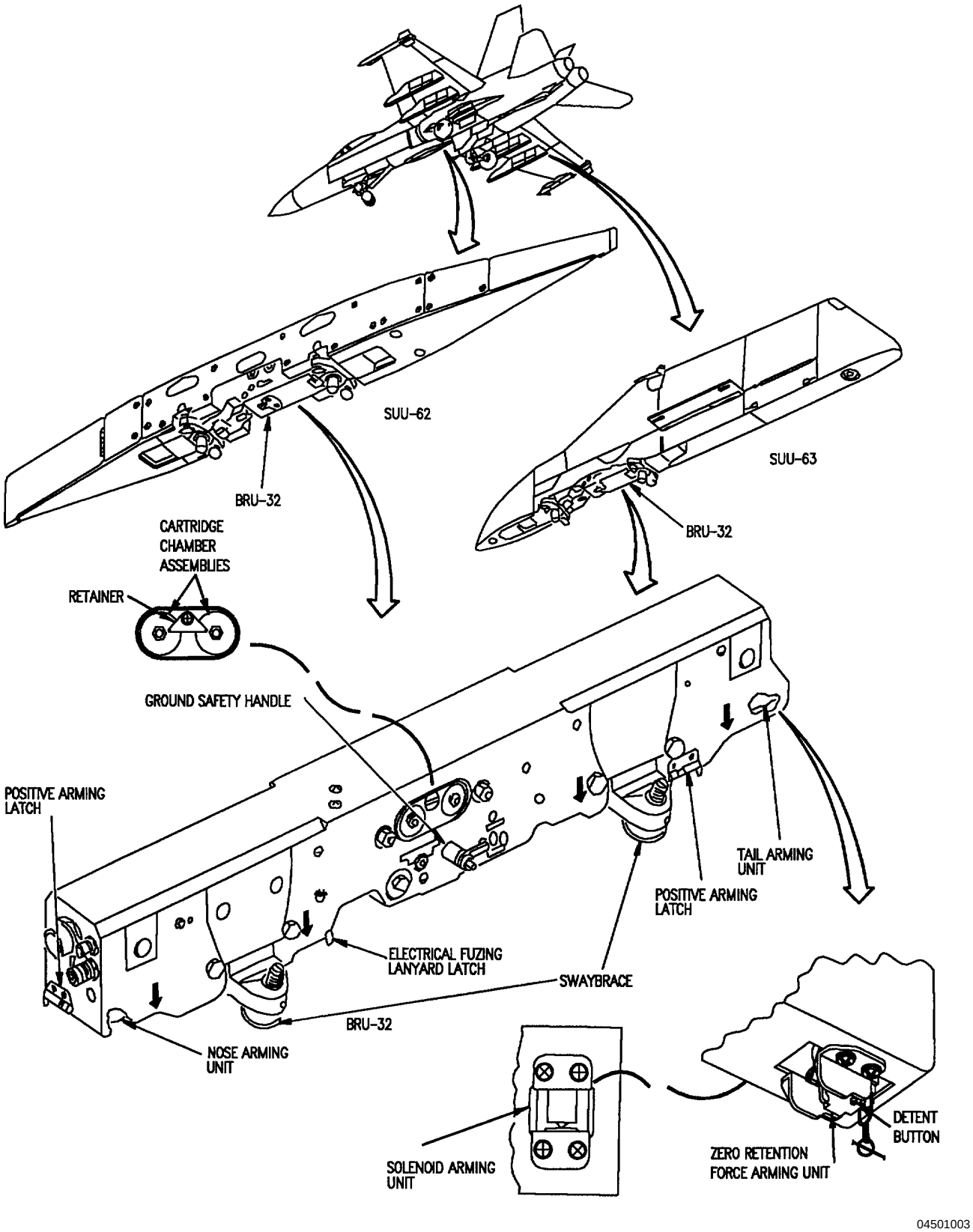
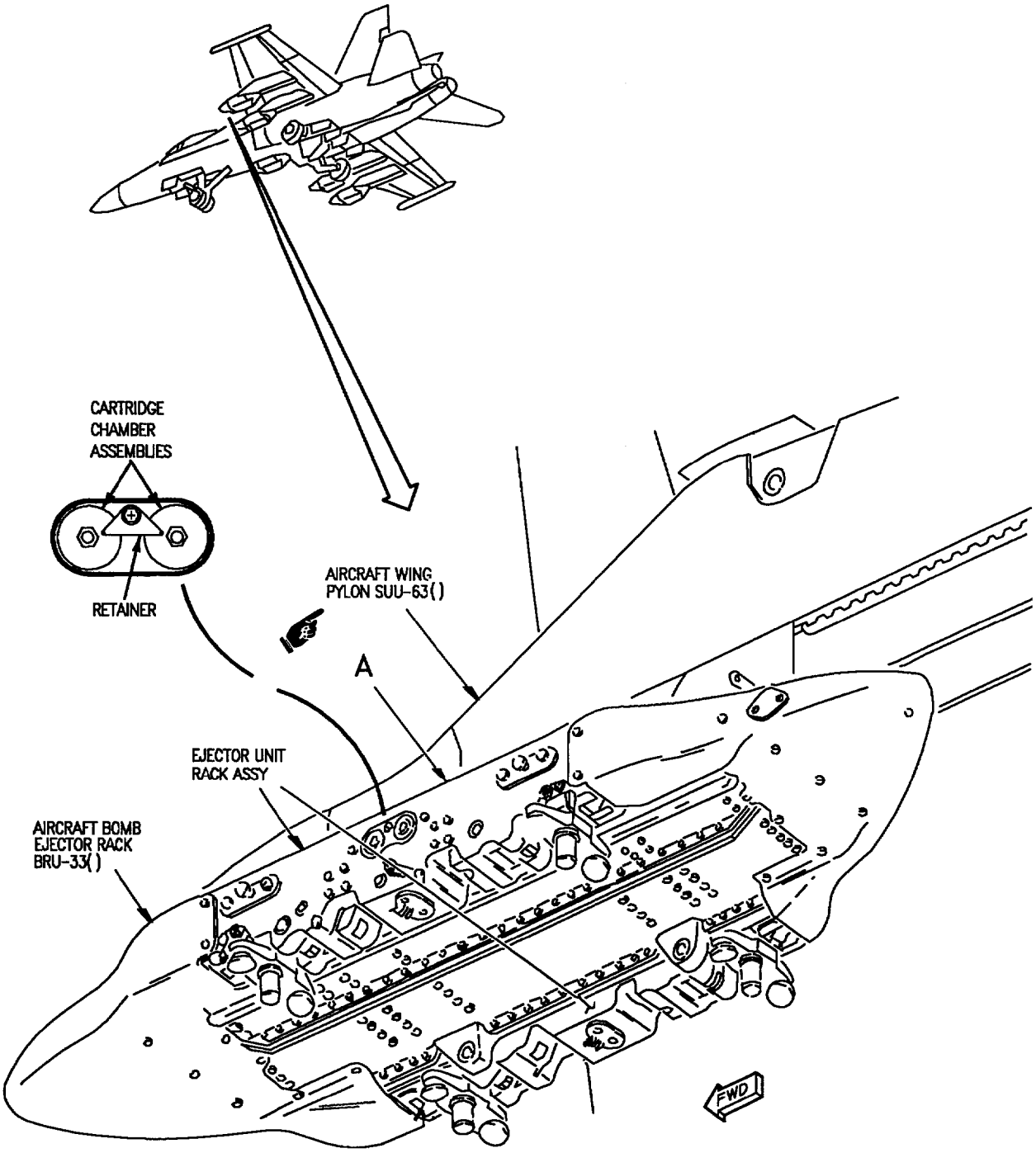


Figure 3. Mechanical Fuzing, BRU-32/( ) Arming Units



45010401

Figure 4. Mechanical Fuzing, BRU-33/( ) Arming Units (Sheet 1)

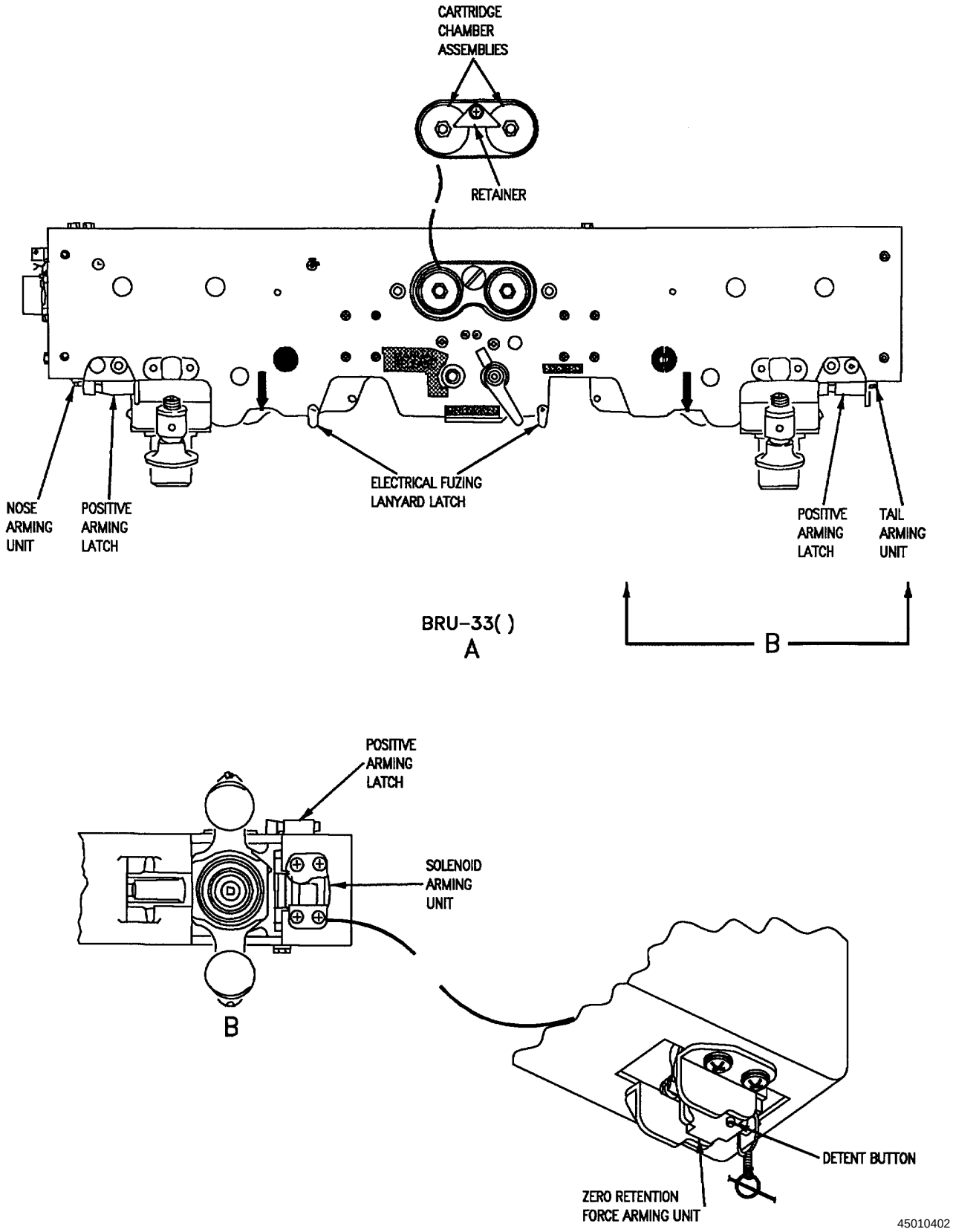


Figure 4. Mechanical Fuzing, BRU-33/( ) Arming Units (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - MECHANICAL FUZING SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

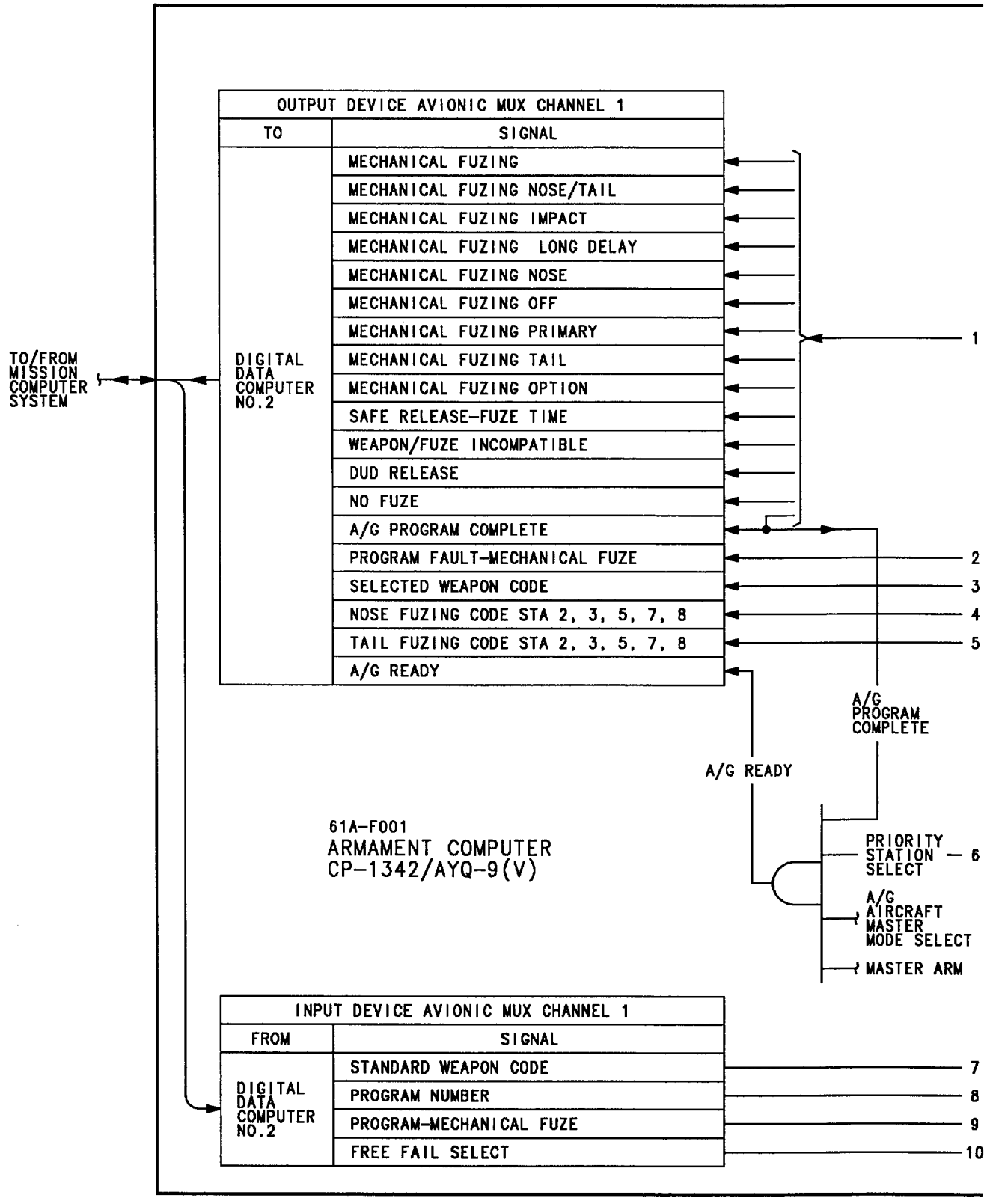
Subject	Page No.
Introduction	1
Mechanical Fuzing Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

None

1. INTRODUCTION.

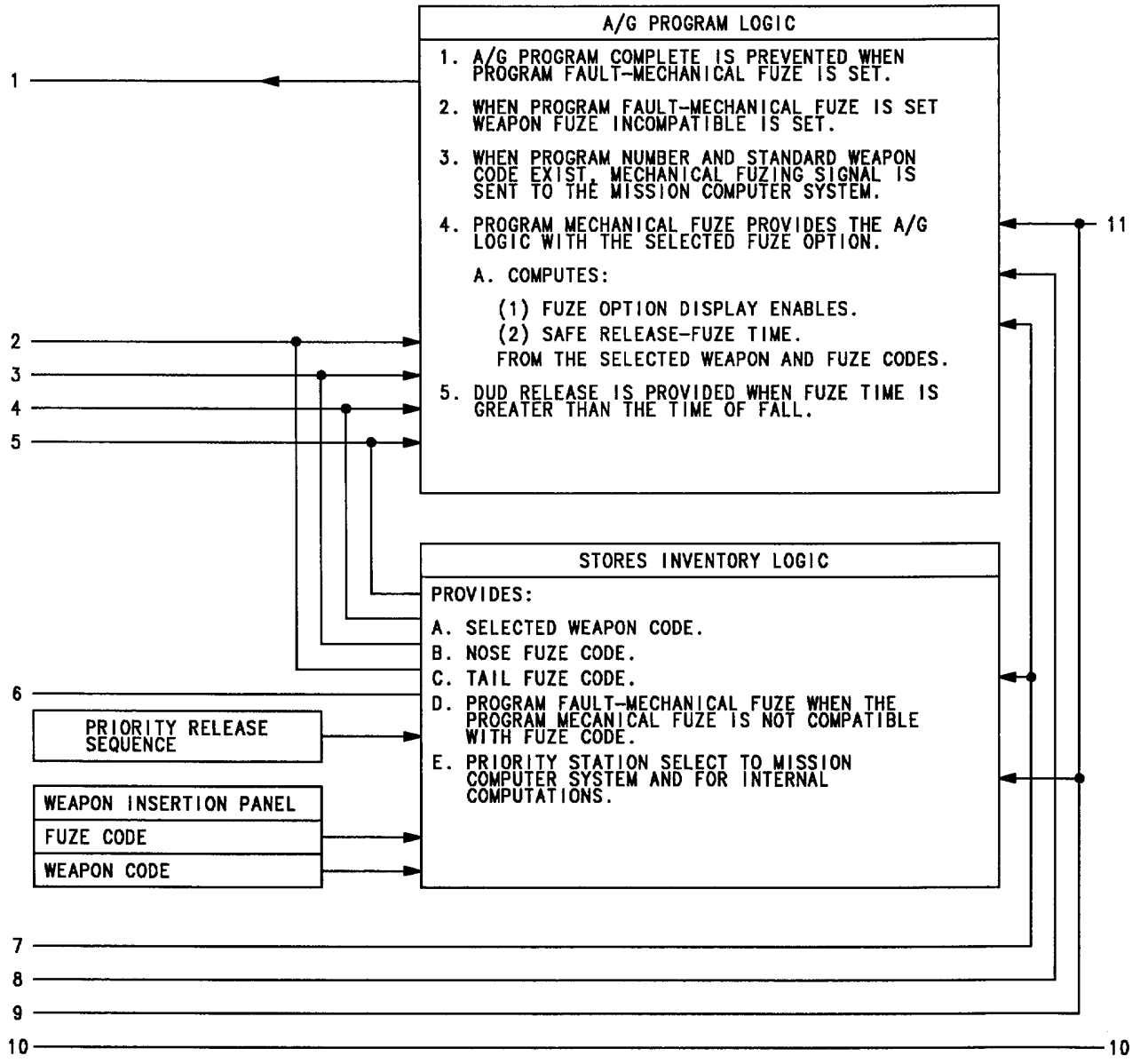
2. The schematic in this work package is provided to support the data in WP045 01.



45020101

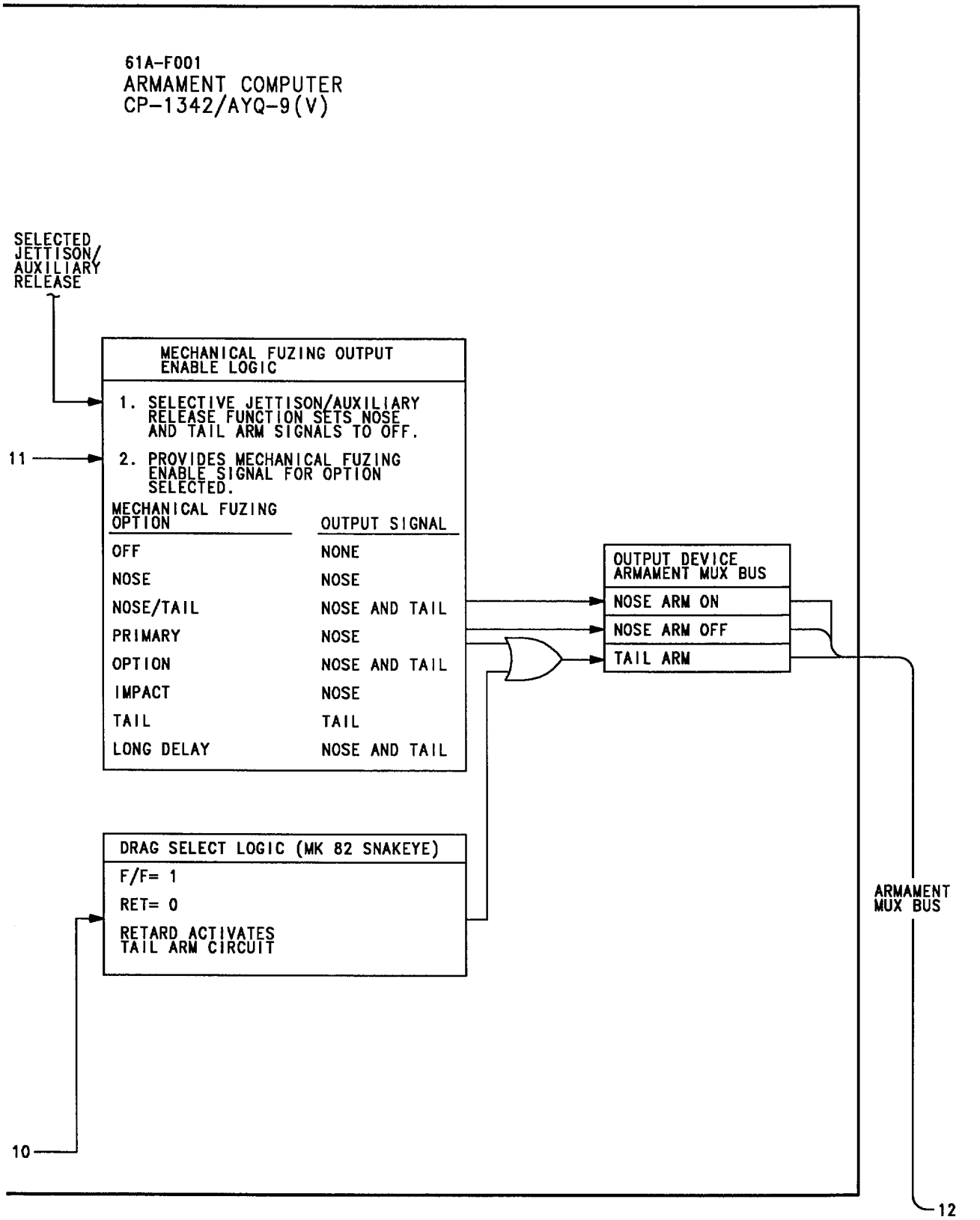
Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 1)

61A-F001
ARMAMENT COMPUTER
CP-1342/AYQ-9(V)



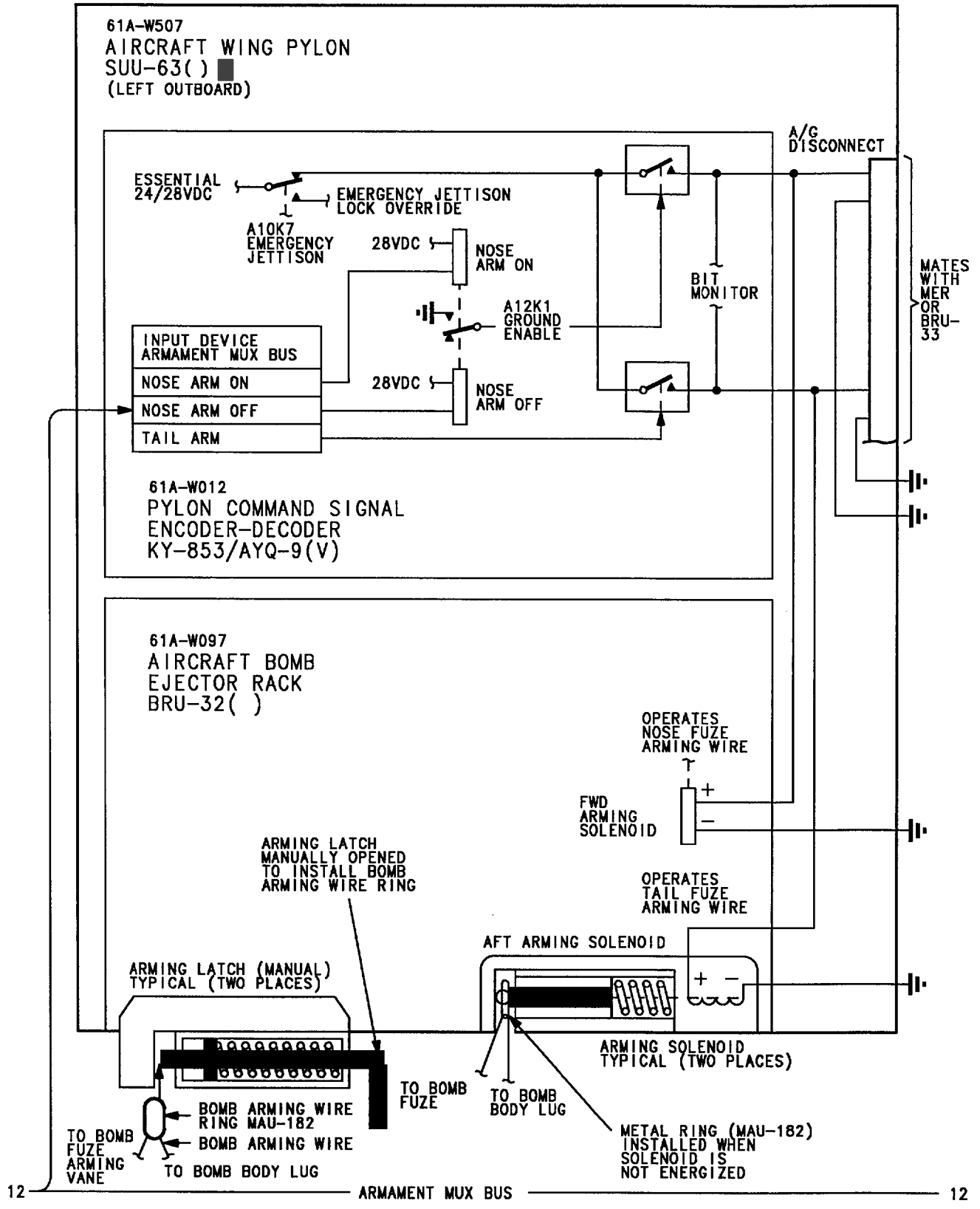
45020102

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 2)



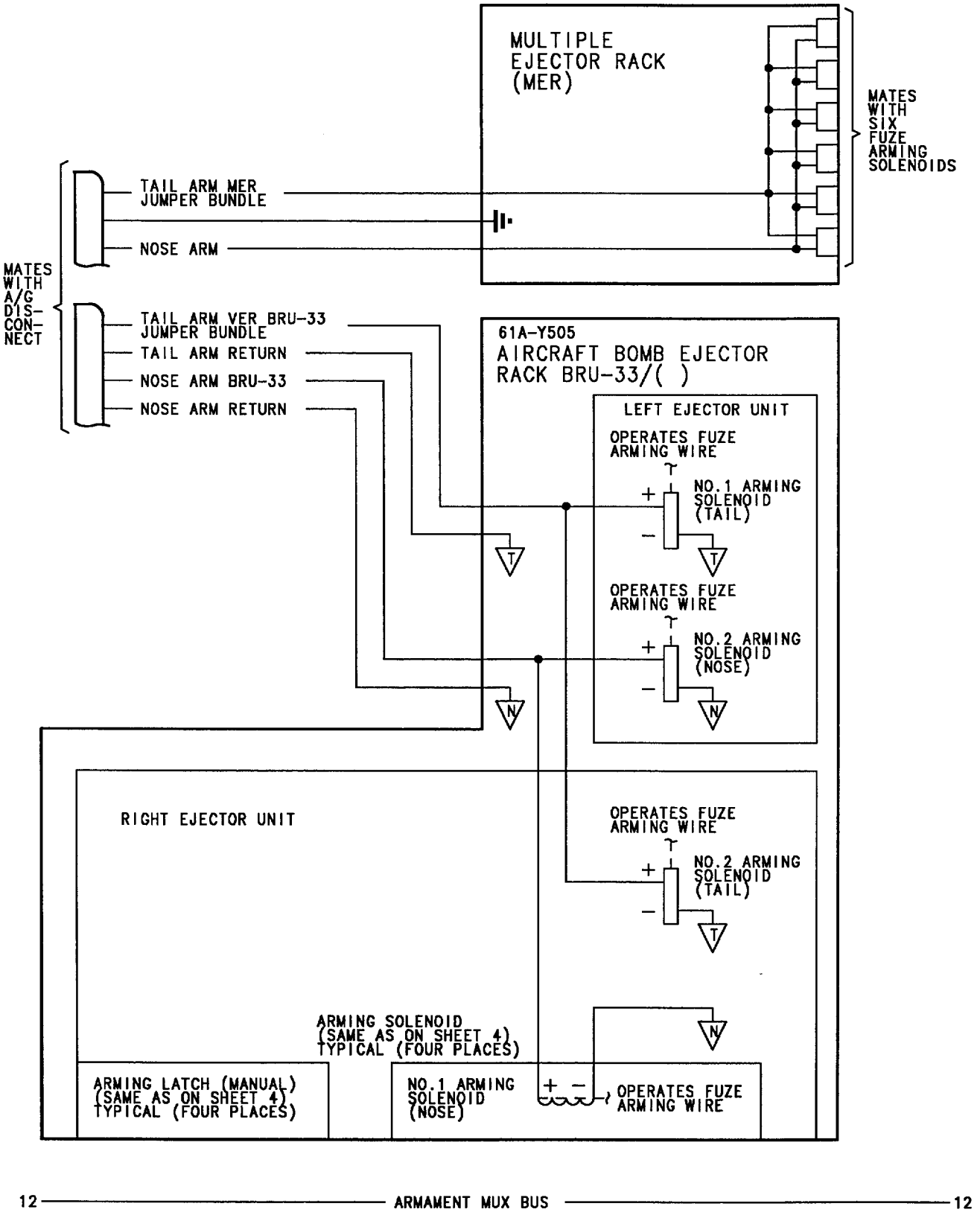
45020103

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 3)



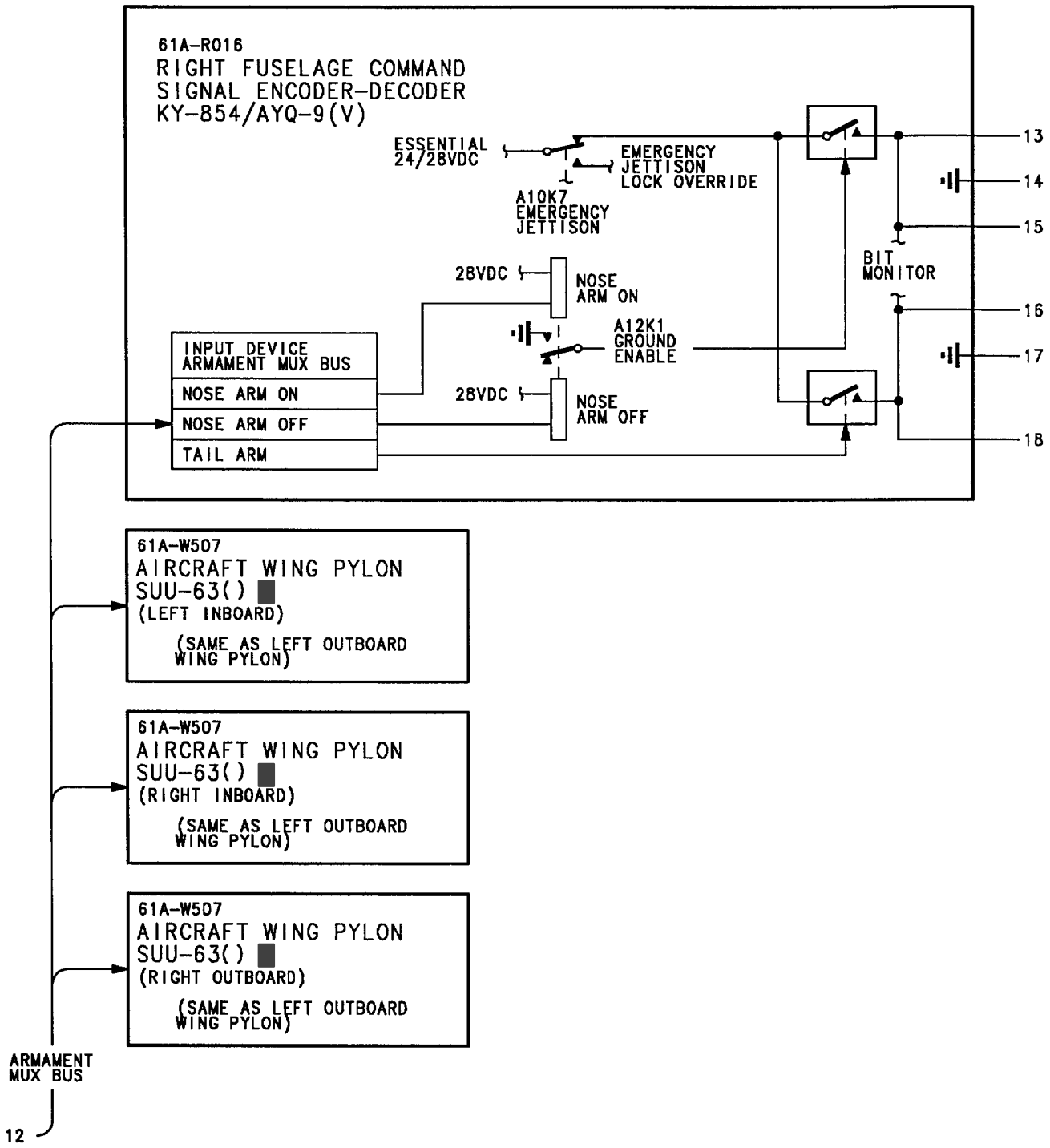
45020104

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 4)



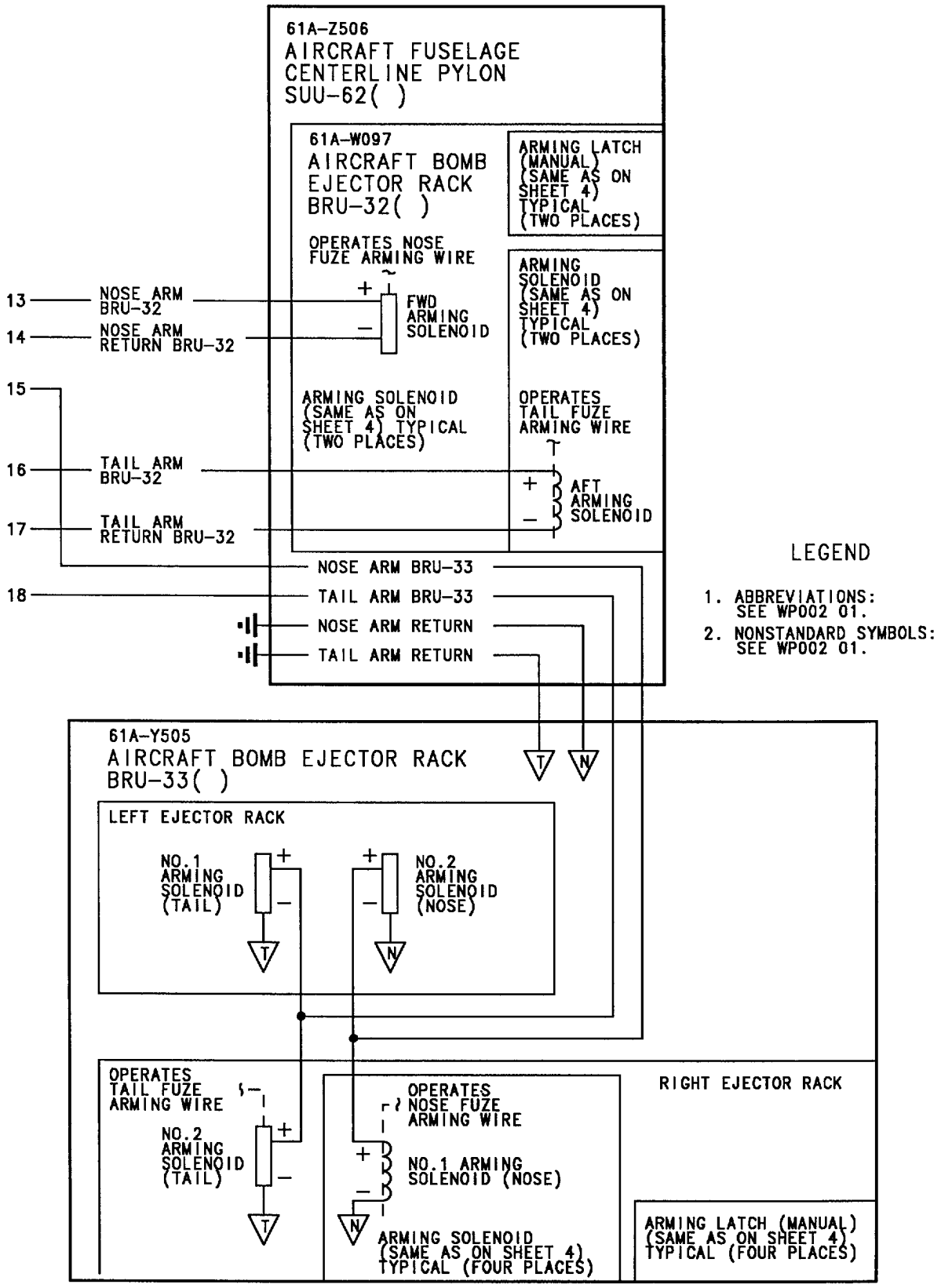
45020105

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 5)



45020106

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 6)



45020107

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 7)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - MECHANICAL FUZING SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

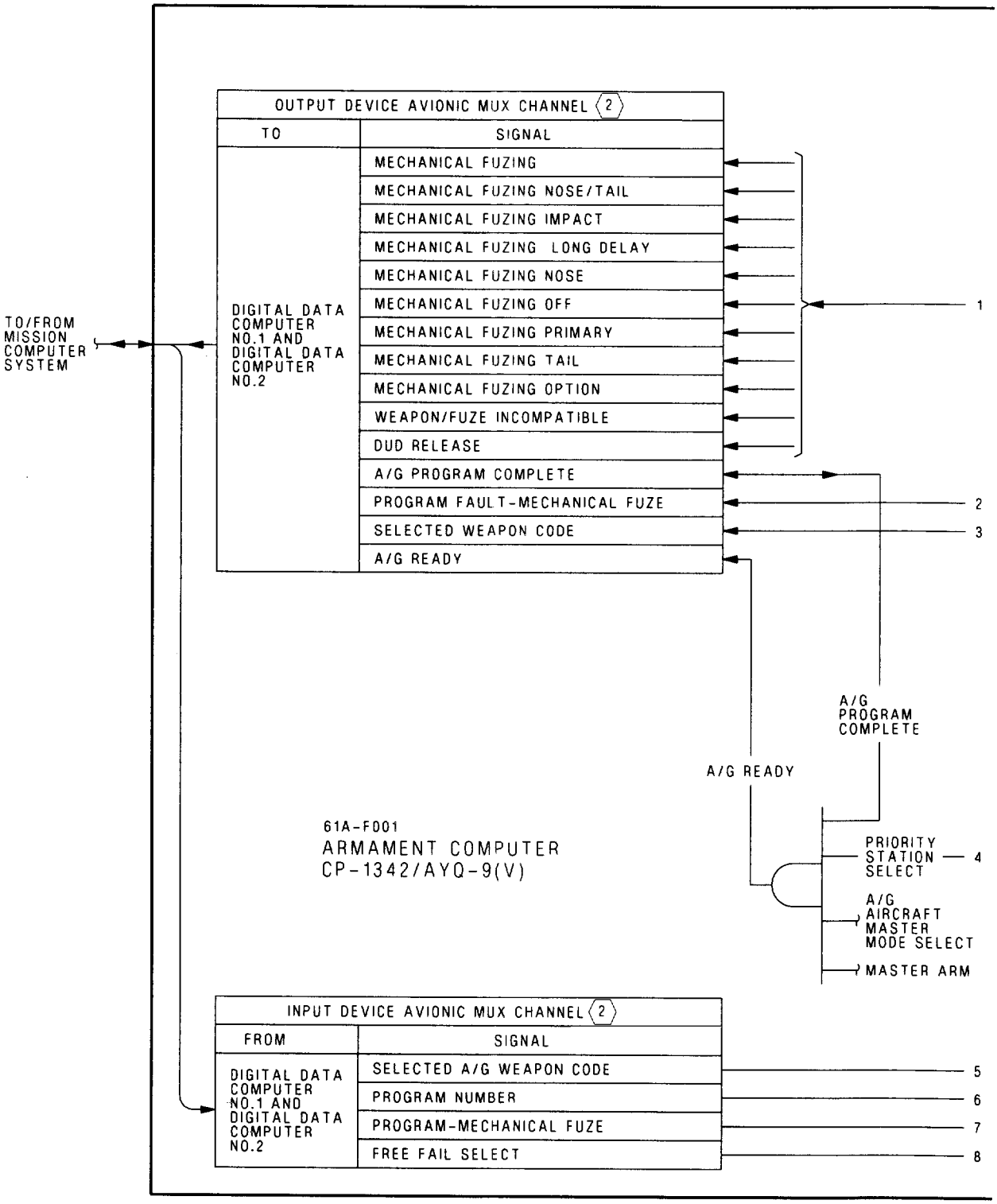
Subject	Page No.
Introduction	1
Mechanical Fuzing Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

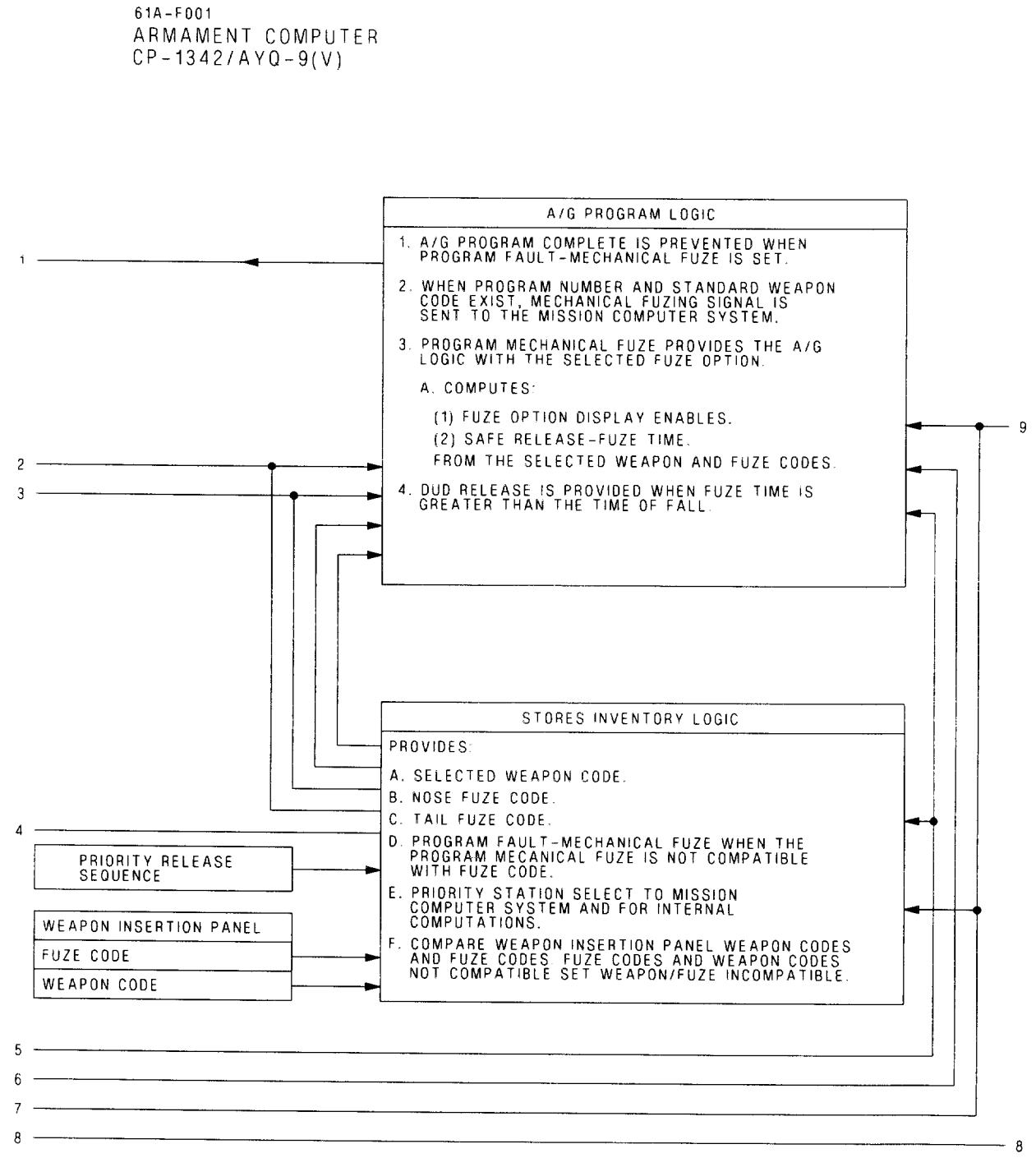
1. INTRODUCTION.

2. The schematic in this Work Package (WP) support the data in WP045 01.



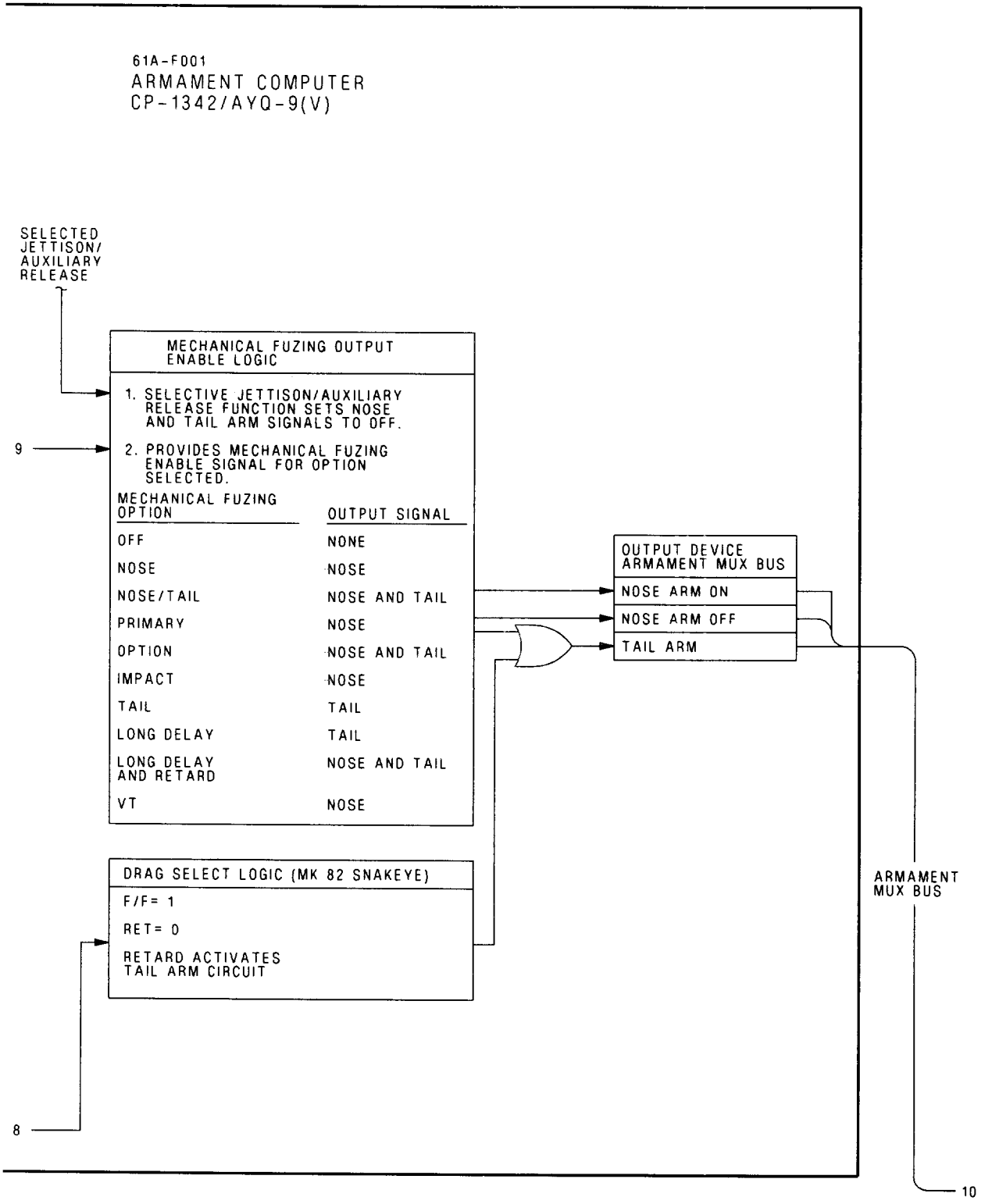
45030101

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 1)



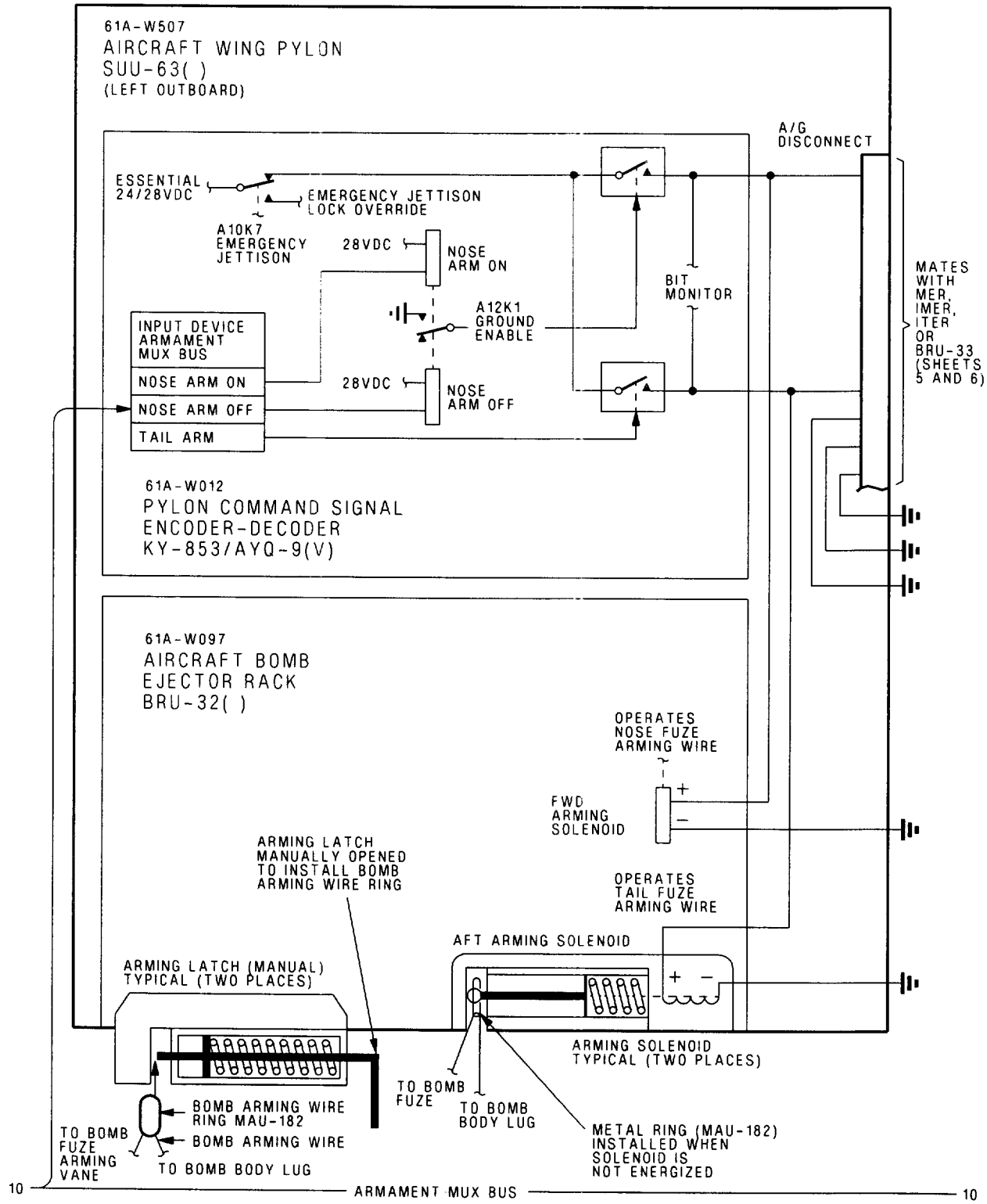
45030102

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 2)



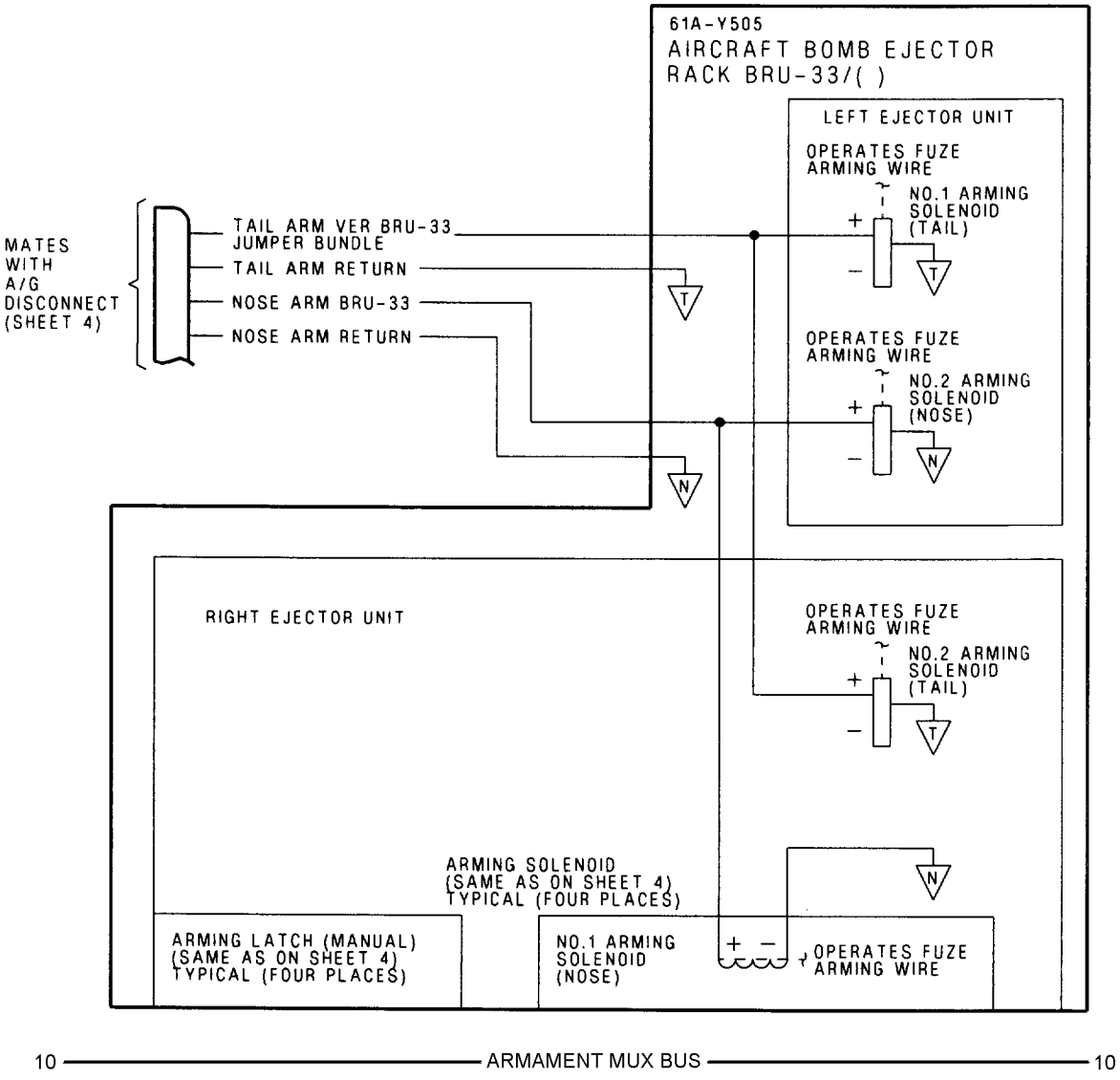
45030103

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 3)



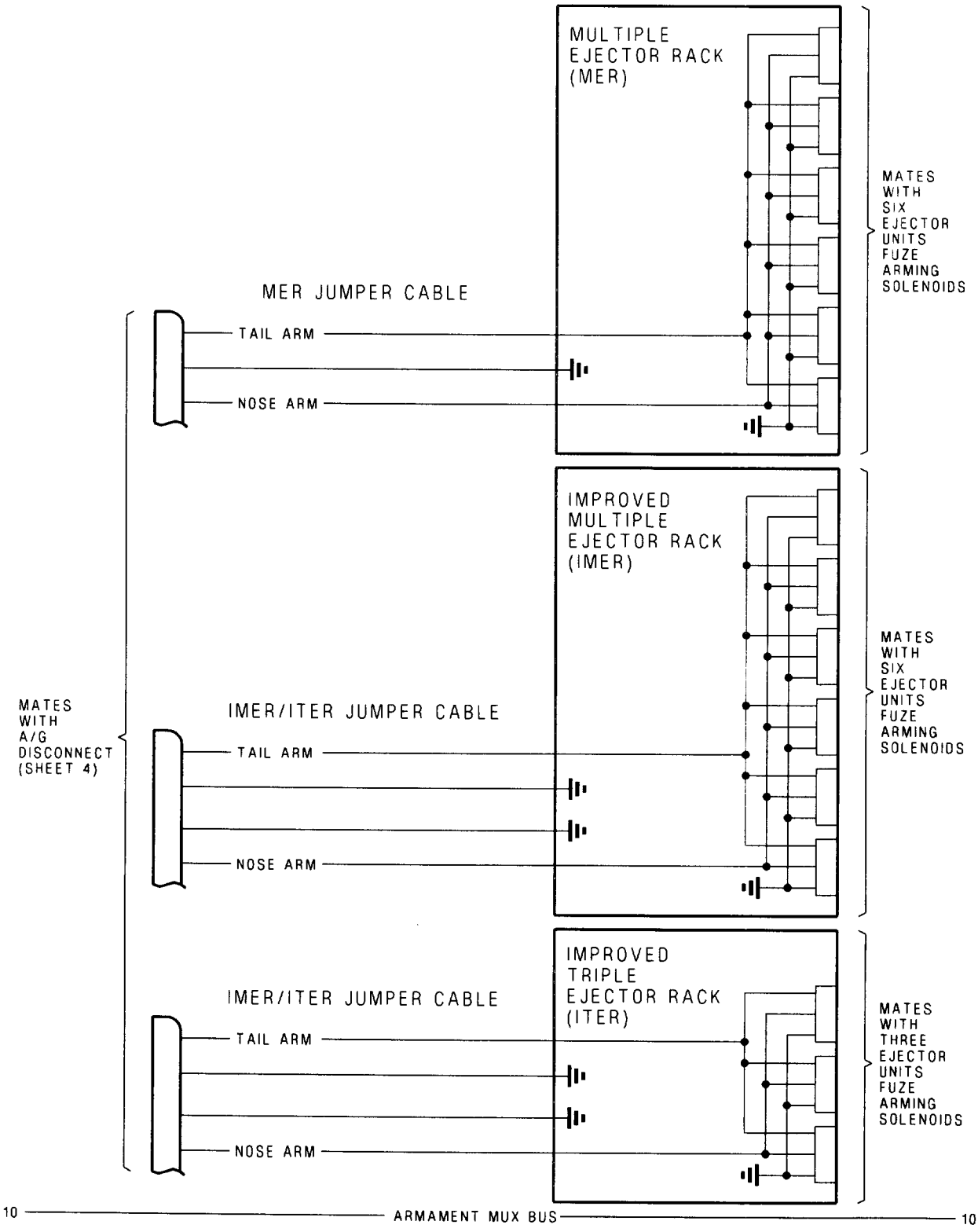
45030104

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 4)



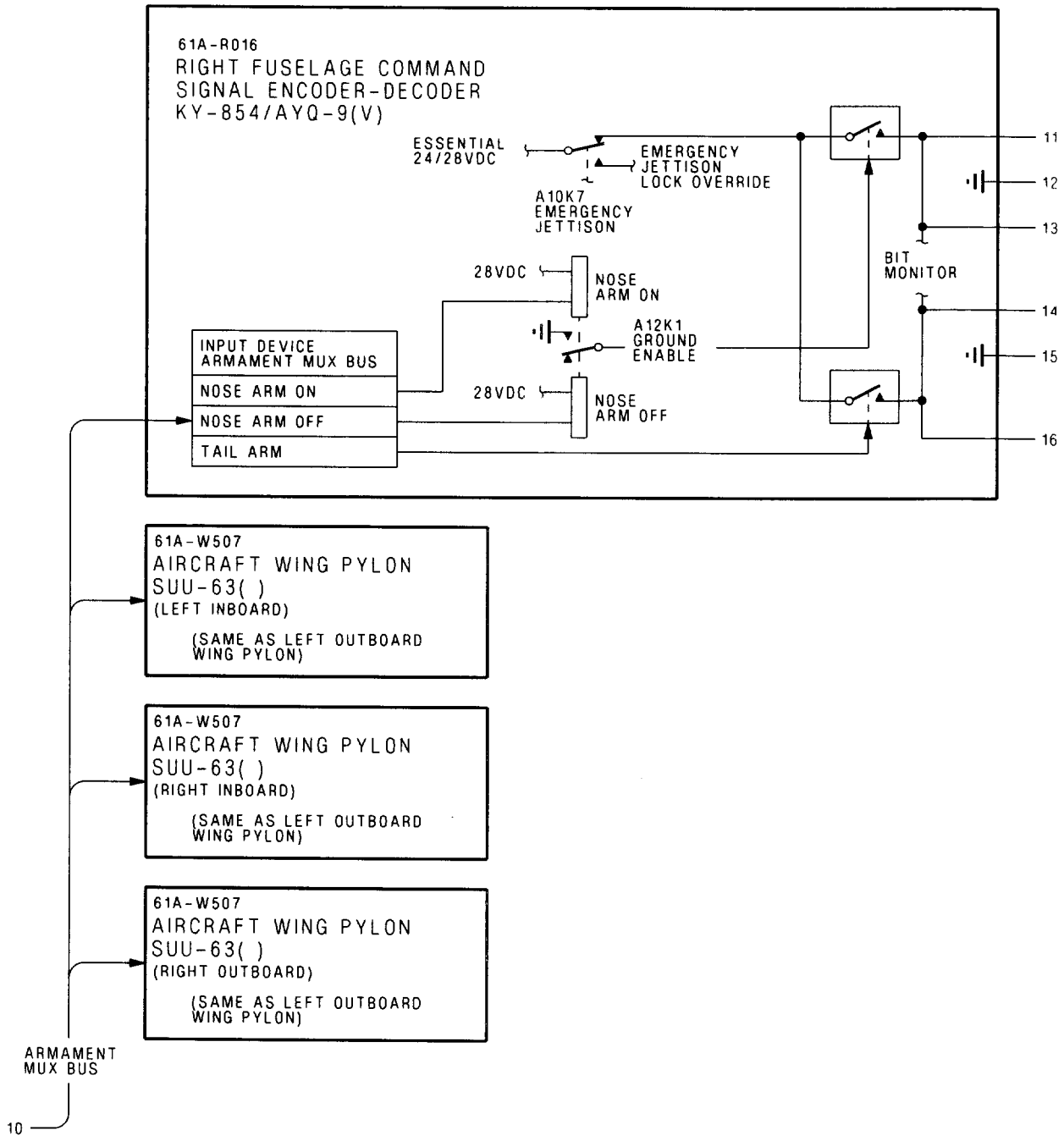
45030105

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 5)



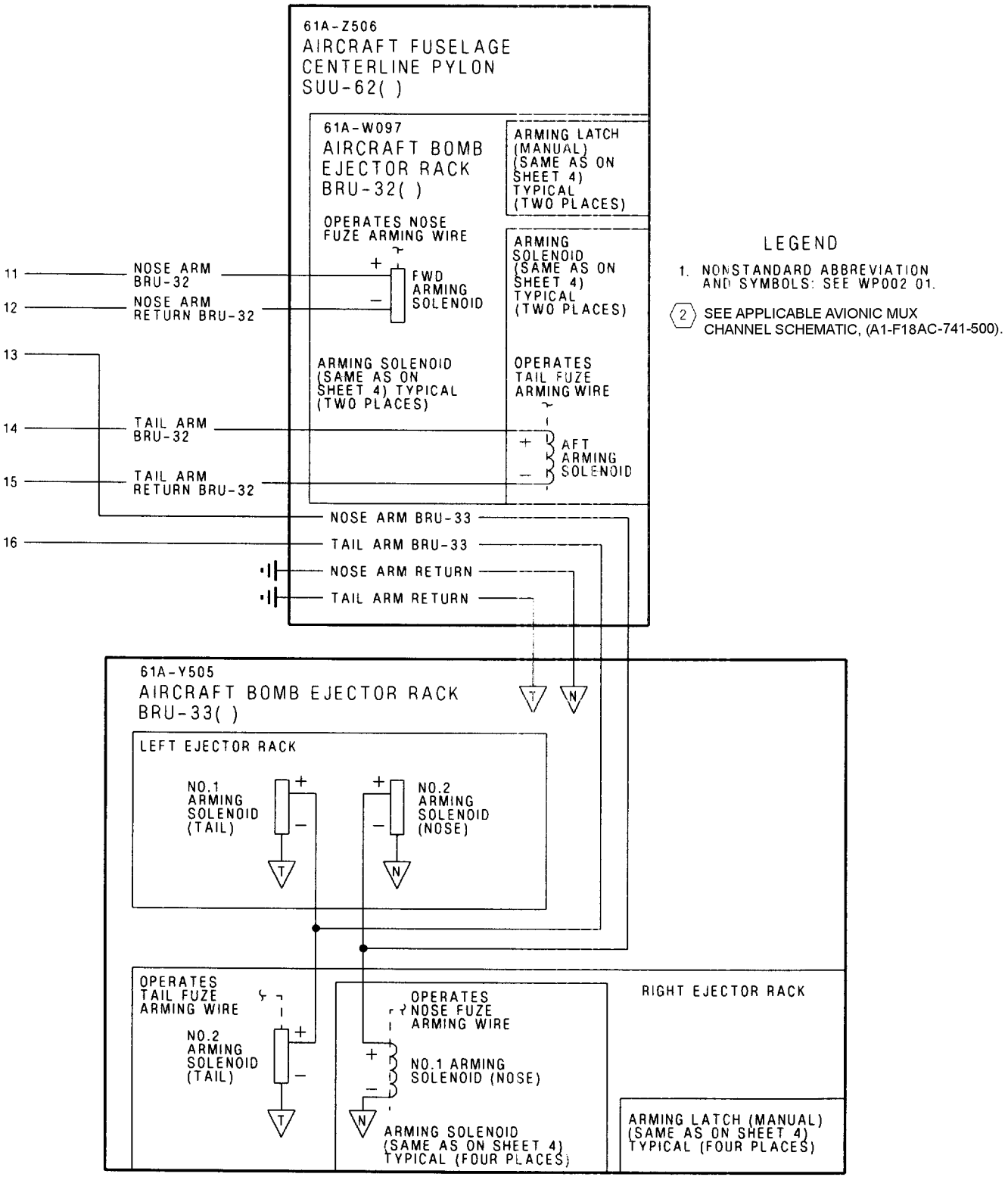
45030106

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 6)



45030107

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 7)



45030108

Figure 1. Mechanical Fuzing Simplified Schematic (Sheet 8)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - AIM-9 SIDEWINDER

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System AIM-9 Sidewinder Simplified Schematics WP047 00
Weapon Control Systems A1-F18AC-740-500
Weapon Station 2, 8 AIM-9 Sidewinder Schematic WP047 00
AIM-9 Sidewinder Avionic Interface Schematic WP048 00

Alphabetical Index

Subject	Page No.
AIM-9 Built-In Test	13
AIM-9 Built-In Test, Table 1	14
AIM-9 End to End Test	13
AIM-9 Initialization	6
AIM-9 Sidewinder Displays, Figure 1	15
AIM-9 Sidewinder Missiles	2
AIM-9 Sidewinder Missile Operation	2
AIM-9 Simulation Mode	12
Displays	10
Introduction	2
Jettison	13
Launch	10
Launcher/Missile Interface	2
Prelaunch Data Processing	8
Sidewinder Select	7

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) AIM-9 Sidewinder operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP047 00 for the simplified AIM-9 missile operation schematic. The simplified schematic shows interface between Armament Computer CP-1342/AYQ-9(V), Mission Computer (MC) system and weapon station 2. Weapon station 2 is shown as typical for stations 1, 8 and 9; however, weapon stations 1 and 9 do not use Aircraft Guided Missile Launcher LAU-115( ) or Aircraft Guided Missile Launcher LAU-127 (AFTER AFC 253 OR 292).

4. The simplified schematic lists the function of the armament computer and MC system required for AIM-9 computations. WP047 00 shows simplified schematics of Guided Missile Launcher LAU-7( ) or LAU-127 (AFTER AFC 253 OR 292) and LAU-115 launcher relay and audio switching functions.

5. A detailed AIM-9 schematic is shown in A1-F18AC-740-500, WP047 00, station 2 AIM-9 Sidewinder Schematic and WP048 00, AIM-9 Sidewinder Avionic Interface Schematic.

6. Figure 1 shows displays related to AIM-9 missile operation.

7. Refer to WP014 00 for component locations.

8. AIM-9 SIDEWINDER MISSILE OPERATION.

9. Sidewinder operation in this work package is listed below:

a. AIM-9 sidewinder missiles

b. launcher/missile interface

c. AIM-9 initialization

d. sidewinder select

e. prelaunch data processing

f. launch

g. displays

h. AIM-9 simulation mode

i. AIM-9 built-in test

j. jettison

10. **AIM-9 SIDEWINDER MISSILES.** The AIM-9 is a short range missile that uses an infrared detecting sensor system for detection, lock on, tracking, and missile guidance after launch. Sidewinders are rail launched from Guided Missile Launcher LAU-7( ) on stations 1, 2, 8, and 9 and LAU-127 on stations 2 and 8 (AFTER AFC 253 OR 292).

11. Six sidewinder missiles can be carried on the aircraft. The left and right wingtip, (weapon stations 1 and 9) can each carry one AIM-9 missile. The left and right outboard wing pylons, (weapon stations 2 and 8) can each carry two AIM-9 missiles.

12. On 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, AIM-9M can be loaded as well as AIM-9L.

13. **LAUNCHER/MISSILE INTERFACE.** Wingtip sidewinder weapon stations 1 and 9 have the LAU-7 bolted to the wingtip. Sidewinders loaded on pylon weapon stations 2 and 8 have the LAU-7 or LAU-127 (AFTER AFC 253 OR 292) installed on the Aircraft Guided Missile Launcher LAU-115( ). The LAU-115 is installed on Aircraft Bomb Ejector Rack BRU-32( ) which is part of the pylon.

14. The Guided Missile Launcher LAU-7 simplified schematic in WP047 00 shows the LAU-7 circuits. Guided Missile Launcher LAU-127 simplified schematic in WP047 00 shows the LAU-127 circuits. The AIM-9 LAU-115 launcher relay switching simplified schematic in WP047 00 shows the relay switching circuits in the LAU-115. Launcher interface for the AIM-9 is listed below:

a. LAU-7 missile interface

b. LAU-115 relay switching

c. LAU-127 missile interface (AFTER AFC 253 OR 292)

15. **LAU-7 Missile Interface.** Signal interface for AIM-9 operation is a function of the LAU-7. Interconnecting wiring with the weapon station command signal encoder-decoder and power control circuits are discrete input/output signals to the LAU-7.

16. The connector on the LAU-7 mates with the umbilical connector on the missile. This connector is pulled away from the missile during launch when the missile is leaving the launcher. Another connector mates with aircraft/LAU-115 wiring.

17. Missile signal functions from the LAU-7 are listed below:

a. missile/launcher power distribution

b. missile monitor signals

c. missile control signals

d. launcher relay sequence

18. Missile/LAU-7 Power Distribution. The LAU-7 launcher and AIM-9 missile require 28vdc and 115vac 400 Hz ØC on stations 2 and 8. Stations 1 and 9 use 28vdc and 115vac 400 Hz ØA. When aircraft power is on, 28vdc is applied to the LAU-7. The weapon station power control relay must be energized to apply 115vac to the LAU-7.

19. When power is applied to the aircraft, 28vdc is sent to the missile through deenergized contacts of the missile power interlock relay as heater power for the missile servos. During the launch sequence, the 28vdc is used for relay switch logic.

20. During SMS power up, the armament computer sends an enable signal to energize the weapon station power control relay for stations with an AIM-9 ident. When energized, 115vac is sent to the launcher and missile. The weapon station power control relay remains energized while the ident is true.

21. The 115vac is sent to the missile and the internal launcher power supply. The power supply sends regulated voltages to the missile and uses the voltage in the launcher for the audio and power relay control.

22. Missile Monitor Signals. The launcher provides signals required by the SMS to monitor the missile and launcher status. Monitor signals are listed below:

a. AIM-9 Ident - The AIM-9 ident is a discrete ground signal sent from the missile to the weapon station encoder-decoder for wingtip stations. The AIM-9 ident (ground) energizes switching relays in the pylons to enable left and right missile idents to the pylon encoder-decoder. The ident signals are made available on the armament mux bus for use in the armament computer for weapon initialization, inventory, and select functions.

b. Left/Right Reference and Acquisition Lambda - The SMS sends head command signals to control the seeker head position of the missile. To do this, the SMS monitors left/right reference and acquisition lambda. These signals are discrete inputs to the weapon station encoder-decoder which represent seeker head position. The encoder-decoder compares and processes the two signals and sends acquisition lambda X and Y to the armament computer on the armament mux bus.

c. Weapon Audio - The AIM-9 processes an audio signal output as a function of target detection and strength. The audio tone is amplified in the launcher and sent to the audio switching circuits in the armament computer. Relay logic in the armament computer sends the selected AIM-9 audio to the pilot/instructor's headsets by way of the intercommunications and tone system.

23. Missile Control Signals. During prelaunch operations the weapon station encoder-decoder sends discrete control signals to the selected weapon station launcher/missile to prepare the missile for launch. Control signals are listed below:

a. Head Command - Positioning of the seeker head in the missile is done by the head command discrete from the weapon station encoder-decoder. The mission computer system provides this data to the encoder-decoder by way of the armament computer and armament mux bus. The mission computer system uses acquisition lambda X and Y data from the SMS, mode select logic, and radar antenna position data to compute the displacement of the seeker head and required position. The computed signal is the head command signal to the seeker head.

b. Coolant Control - The seeker head sensing unit in the missile is cooled by nitrogen to increase sensitivity to the infrared targets. The launcher contains the nitrogen storage tank and a control valve which turns the nitrogen flow off and on. The 28vdc coolant control discrete from the weapon station encoder-decoder turns the control valve in the launcher on.

c. Manual Uncage - A manual uncage 28vdc discrete is sent to the Lau-7 from the weapon station encoder-decoder at missile selection. The

armament computer sends the manual uncage command signal to the encoder-decoder on the armament mux bus. During manual uncage operation, the head command signal positions the missile seeker to the radar LOS (SEAM mode) or to aircraft boresight (boresight mode), or, AFTER AFC 253 OR 292, to the multi source integration (MSI) launch and steering (L&S) line of sight (LOS) until the missile seeker locks on to the detected target.

d. AIM-9 Right Missile Select - The switching relays in the LAU-115 and LAU-7 enable the launcher to carry two missiles. The left missile uses the deenergized set of contacts at the relays. When the right missile is the selected priority weapon, the AIM-9 right missile select signal is sent to the LAU-115. The signal energizes the right select relays to send the AIM-9 signals to the right LAU-7.

24. Launcher Relay Sequence. To start the launch sequence in the launcher, 28vdc master arm and 28vdc launch command discretes are sent to the launcher from the weapon station command signal.

25. Master arm logic is ARM when the master arm discrete input exists and either weight off wheels exists or armament safety override discrete input exists. Otherwise, master arm logic SAFE exists.

26. When 28vdc master arm is applied to the launcher, the detent-lock solenoid is energized. Energizing the solenoid enables motor fire and mechanically unlocks the detent to allow the missile to leave the launcher when the motor thrust is 2300 pounds or more. Master arm is also applied to two sets of common contacts of the launch relay.

27. When the launch command is applied to the launcher the launch relay energizes and causes the functions listed:

a. Sends master arm voltage to the coil of master arm and launch relay; energizing the relay.

b. Sends launch latch to missile to enable safe-arm mechanism.

c. Sends launch command voltage to gas generator squibs in missile.

28. When the missile has come up to power, the missile sends a gas generator squib signal to the missile power interlock relay control that energizes the relay. Launcher 28vdc power is then sent through energized contacts of the master arm and launch relay to the missile for fuze battery and motor squib.

29. **LAU-127 Missile Interface - AFTER AFC 253 OR 292**. Signal interface for AIM-9 operation is a function of the LAU-127. Interconnecting wiring with the weapon station command signal encoder-decoder and power control circuits are discrete input/output signals to the LAU-127.

30. The connector on the LAU-127 mates with the umbilical connector on the missile. This umbilical is pulled away from the missile during launch when the missile is leaving the LAU-127. Another connector mates with the aircraft/LAU-115 wiring.

31. Missile signal functions from the LAU-127 are listed below:

a. missile LAU-127 power distribution

b. missile monitor signals

c. missile control signnals

d. LAU-127 relay sequence

32. Missile/LAU-127 Power Distribution. The LAU-127 and missiles requires 28vdc and 115vac 400Hz ØC. When aircraft power is on, 28vdc is applied to the LAU-127. The weapon station power control relay must be energized to apply 115vac to the LAU-127.

33. When power is applied to the aircraft, 28vdc is sent to the missile through deenergized contacts of relay K3 as heater power for the missile servos. During the launch sequence, the 28vdc is used for relay switch logic.

34. During SMS power up, the armament computer sends an enable signal to energize the weapon station power control relay for stations with an AIM-9 ident. When energized, 115vac is sent to the LAU-127 and missile. The weapon station power control relay remains energized while the ident is true.

35. The 115vac is sent to the internal power supply and then to the missile. The power supply converts the 115vac 400 Hz power into regulated 25vdc and 175vdc outputs which are required for prelaunch operation of the missile. The power supply includes a low noise precision audio amplifier that processes the target acquisition signal. The power supply also contains relay logic circuitry that operates the resonant tone firing interlock, automatic launch deactivate, and sequential squib firing circuits.

36. Missile Monitor Signals. The LAU-127

provides signals required by the SMS to monitor the missile and LAU-127 status. Monitor signals are listed below:

a. AIM-9 Ident. The AIM-9 ident is a discrete ground signal sent from the missile to the LAU-115. The AIM-9 ident (ground) energizes switching relays in the LAU-115 to enable left and right missile idents to the pylon encoder-decoder. The ident signals are made available on the armament mux bus for use in the armament computer for weapon initialization, inventory, and select functions.

b. Left/Right Reference and Acquisition Lambda. The SMS sends head command signals to control the seeker head position of the missile. To do this, the SMS monitors left/right reference and acquisition lambda. These signals are discrete inputs to the weapon station encoder-decoder which represent seeker head position. The encoder-decoder compares and processes the two signals and sends acquisition lambda X and Y to the armament computer on the armament mux bus.

c. Weapon Audio. The AIM-9 processes an audio signal output as a function of target detection and strength. The audio tone is amplified in the LAU-127 and sent to the audio switching circuits in the armament computer. Relay logic in the armament computer sends the selected AIM-9 audio to the pilot/instructor's headsets by way of the intercommunications and audio system.

37. Missile Control Signals. During prelaunch operations the weapon station encoder-decoder sends discrete control signals to the selected weapon station LAU-127/missile to prepare the missile for launch. Control signals are listed below:

a. Head Command. Positioning of the seeker head in the missile is done by the head command discrete from the weapon station encoder-decoder. The mission computer system provides this data to the encoder-decoder by way of the armament computer and armament mux bus. The mission computer system uses acquisition lambda X and Y data from the SMS, mode select logic, and radar antenna position data to compute the displacement of the seeker head and required position. The computed signal is the head command signal to the seeker head.

b. Coolant Control. The seeker head sensing unit in the missile is cooled by nitrogen to increase sensitivity to the infrared targets. The LAU-127 contains the nitrogen storage tank and a control valve which turns the nitrogen flow off and on. The 28vdc coolant control discrete from the weapon station encoder-decoder turns the control valve in the LAU-127 on.

c. Manual Uncage. A manual uncage 28vdc discrete is sent to the LAU-127 from the weapon station encoder-decoder at missile selection. The armament computer sends the manual uncage command signal to the encoder-decoder on the armament mux bus. During manual uncage operation, the head command signal positions the missile seeker to the MSI L&S LOS or to aircraft boresight until the missile seeker locks on to the detected target.

d. AIM-9 Right Missile Select. The switching relays in the LAU-115 launcher enable the LAU-127 to carry two missiles. The left missile uses the deenergized set of contacts at the relays. When the right missile is the selected priority weapon, the AIM-9 right missile select signal is sent to the LAU-115. The signal energizes the right select relays to send the AIM-9 signals to the right LAU-127.

38. LAU-127 Relay Sequence. LAU-127 launch sequence requires two signals. LAU-127 unlock command 1 and LAU-127 unlock command 2 (master arm). The launch sequence starts by these two signals being sent to the LAU-127 from the weapon station command signal encoder-decoder. LAU-127 unlock command 1 and 2 unlock the detent slide assembly allowing AIM-9 launch. Loss of LAU-127 unlock command 1 or 2 will cause the launch commmand deactivate circuit.

39. When the detent slide assembly is unlocked (fully open), LAU-127 unlock command 2 is sent to the launcher power supply and enables aft striker signal for AIM-9 launch. If the detent slide assembly is not fully open for any reason, launch will be inhibited.

40. When the launch command is applied to the launcher, launcher relay logic causes the functions listed below:

a. Sends launch latch signal to the missile to enable safe-arm mechanism

b. Sends launch command voltage to gas generator squibs in the missile

c. Enables auxiliary fire or regulator load signal from the missile

d. Sends aft striker to start rocket motor ignition sequence

e. Enables forward striker and fuze battery squib signals to the missile

41. Upon thrust build-up, the AIM-9 missile will fly through the forward detent and the launch sequence will be completed.

42. **LAU-115 Relay Switching.** The relay switching circuits in the LAU-115 enables the pylon AIM-9 station to carry two missiles.

43. Left AIM-9 Switching. The coil of 61K-W227 has 28vdc applied when power is on the aircraft. The coil energizes when a left AIM-9 ident (ground) exists. The relay contacts enable AIM-9 ident to the pylon encoder-decoder and 115vac to the LAU-7 and LAU-127 (AFTER AFC 253 OR 292). Missile signals are routed through deenergized contacts of 61K-W224, 61K-W225 and 61K-W228 switching relays in the LAU-115.

44. Right AIM-9 Switching. The coil of 61K-W226 has 28vac applied when power is on the aircraft. The coil energizes when a right AIM-9 ident (ground) exists. The contacts enable AIM-9 ident to the pylon encoder-decoder and 115vac to the LAU-7 and LAU-127 (AFTER AFC 253 OR 292). The right AIM-9 select signal energizes relay 61K-W229. Now 28vdc is applied through the energized contacts to the coil of relays 61K-W224, 61K-W225, and 61K-W228. The relays energize and apply the missile signals to the LAU-7 and LAU-127 (AFTER AFC 253 OR 292) for the right AIM-9 missile.

45. **AIM-9 INITIALIZATION.** The armament computer does a complete power on BIT of the SMS components at power turn on. Weapon initialization is done during the power on BIT. Initialization establishes the ability of the SMS and weapon to launch the AIM-9. Data related to initialization is sent to the MC system at the end of the power on BIT by way of avionic mux channel.

46. The initialization process is made up of functions listed below:

a. stores inventory

b. priority release sequence

c. landing gear interlock logic

d. coolant control logic

e. lock/unlock status

47. **Stores Inventory.** Weapon load and the status of each AIM-9 is monitored by the stores inventory function. Stores inventory is done at the SMS power turn on and each time the armament computer processes a weapon release signal.

48. The weapon station encoder-decoders are turned on during the weapon initialization process and the AIM-9 idents are monitored. When an ident exists, the weapon station power control relay enable discrete energizes the power control relay for the station. Since all weapon station encoder-decoders are turned on during the power on BIT, all stations with an AIM-9 will be identified and have power applied to the missiles after power on BIT.

49. Weapon stations with AIM-9 idents are BIT tested. Circuits related to AIM-9 are functionally tested and the BIT status sent to the MC system.

50. AIM-9 load failures are identified by testing the weapon insertion panel ARMAMENT switch settings on the armament computer. Pylon ARMAMENT switches R OUTBD and L OUTBD and the WING TIP switch are set as listed in Armament Computer Weapon Insertion Panel Codes and Weapon Displays (WP015 00).

51. **Priority Release Sequence.** The priority release sequence is established by the weapon stations with AIM-9 idents, BIT status of the AIM-9 stations and sidewinder step logic. The normal programmed release sequence is weapon station 2L, 8R, 2R, 8L, 1 and 9. When the BIT status is FAIL, the station is removed from the release sequence. Stations with DEGD (degrade) are moved to the last priority position. After a sidewinder has been selected, the station priority can be stepped to the next priority station by pressing the sidewinder select switch.

52. **Landing Gear Interlock Logic.** Weight off wheels and all gear up and locked are used for sidewinder operation. All gear up and locked must be true for normal AIM-9 release except pylon station

emergency jettison. Weight off wheels logic is used for coolant control and sidewinder BIT functions.

53. **Coolant Control Logic.** During initialization, the coolant control is monitored and set by the switch functions listed:

a. IR COOL switch (map gain control panel assembly)

b. MASTER switch (master arm control panel assembly)

c. LMG WOW relay no. 2

d. sidewinder select switch (A/A weapon select switch)

54. Coolant control on is set with any switch logic listed:

a. IR COOL switch at ORIDE

b. IR COOL switch at NORM and left main landing gear weight off wheels

c. MASTER switch at ARM, left main landing gear weight off wheels, and sidewinder selected

55. **Lock/Unlock Status.** The lock/unlock status of the BRU-32 is monitored when AIM-9 pylon weapons are loaded for jettison functions. During initialization, the lock status is monitored for ground safety. When all gears is up and locked and the SELECT JETT switch has been moved from SAFE, the BRU-32 unlocks to enable selective jettison.

56. **SIDEWINDER SELECT.** The function of selecting sidewinder can be accomplished in any of the following ways:

a. If the A/A aircraft master mode is selected from the master arm control panel assembly, the priority AIM-9 station is automatically selected for launch.

b. On F/A-18B, if A/A aircraft master mode is selected from the master mode select panel assembly on the rear main instrument panel, then again the priority AIM-9 station is automatically selected for launch.

c. Selecting sidewinder can also be done by activating the center press (down) function of the A/A weapon select switch on the aircraft controller grip assembly.

d. On F/A-18B, A/A aircraft master mode must be selected before sidewinder can be selected using the A/A weapon select switch on the rear aircraft controller grip assembly.

57. Selecting sidewinder sends a discrete ground to the armament computer. The armament computer does the sidewinder functions listed:

a. aircraft master mode select

b. armament computer select

c. mission computer select

58. **Aircraft Master Mode Select.** Selecting sidewinder selects the A/A master mode if not previously selected. Selecting any A/A weapon will select A/A master mode and override A/G or NAV modes. A/A master mode is sent to the MC system. The MC system enables the stores display on the left digital display indicator (LDDI) and sets the internal circuits for AIM-9 signal computations.

59. All weapon stations with A/A weapons loaded (ident exists) are BIT tested when A/A master mode is selected. This BIT tests the circuits in the armament computer and weapon station encoder-decoder for the weapon loaded on stations with A/A weapons.

60. **Armament Computer Select.** The armament computer sends the sidewinder select weapon code to the MC system and sets the internal circuits for sidewinder BIT and prelaunch data processing.

61. The first sidewinder in the priority release sequence is selected for release. SEL will appear on the LDDI below the missile form for the AIM-9 priority station. Audio switching relays in the armament computer are set to connect the selected station audio to the intercommunications amplifier-control.

62. The audio switching simplified schematic in WP047 00 shows the audio switching relays for the four sidewinder missile stations. Enable logic for the relay drivers is programmed for the selected priority station. Missile audio from the AIM-9 is amplified in the LAU-7 and LAU-127 (AFTER AFC 253 OR 292) launcher and sent to the armament computer switching relays. The output of the switching relays is sent to the intercommunications and tone system. The output

is also used, internal of the armament computer, for the audio threshold circuits.

63. If station 2 or 8, right sidewinder is selected, the armament computer sends right sidewinder select to the MC system and inhibits seeker lockon. When the MC system sends right sidewinder selected back to the armament computer, seeker lockon is permitted. Right sidewinder select makes sure that the correct missile parameters are computed.

64. Relay BIT monitoring is used to indicate the relay coil function. BIT monitoring does not test the audio signal contacts of the relays. AIM-9 select relay A15K4, when energized, connects 2 KHz (2.7 KHz on aircraft AFTER AFC 253 OR 292) BIT signal to the audio threshold circuits.

65. **Mission Computer Select.** The armament computer sends the sidewinder select weapon code and right sidewinder select to the MC system on the avionic mux channel. The weapon code sets the radar, HUD, and stores displays and sets the internal computation circuits for sidewinder data processing. Right sidewinder selected is sent back to the armament computer when the MC system has determined which constants to use in launch computations.

66. **PRELAUNCH DATA PROCESSING.** The MC system and SMS do the signal data processing for the AIM-9 head commands and seeker lockon. Signal data processing differs depending on sidewinder mode of operation. The three sidewinder modes are listed below:

a. sidewinder expanded acquisition mode (SEAM) (radar tracking)

b. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) OVRD mode

c. boresight mode (radar not tracking, no MSI sensor tracking)

d. cage mode (backup mode, MC 2 failed)

67. **Head Command - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.** The head command signal drives the missile seeker head to a predetermined position computed by the MC system. The MC system uses mode commands, radar data and present missile seeker head position to determine head command. Another compensation is used to compensate for the selected missile position on the aircraft in reference to the aircraft boresight and wing flexing.

68. Head command is sent to the missile during SEAM and boresight modes. When seeker lockon occurs, head command is removed from the missile.

69. The selected AIM-9 sends acquisition lambda and left/right reference signals to the weapon station encoder-decoder. These signals are modified to acquisition lambda X, Y, and XY which is the present seeker head position. The acquisition lambda functions are sent to the armament computer. The armament computer sends the data to the MC system as acquisition lambda X and Y.

70. The MC system compares the acquisition lambda data with the computed seeker head position for the sidewinder mode selected. The difference signal is sent to the armament computer as missile head command. The head command is sent to the selected station encoder-decoder that sends the signal to the missile to drive the seeker head.

71. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) During SEAM operation when the radar is tracking, the head command positions the seeker head to the radar target line of sight. When the head command is more than 20° from missile boresight and actual seeker head position is within 3° of commanded position, the MC system adds a nutation signal to the head command. Pressing the cage/uncage switch on the left throttle lever or rear left throttle lever for less than 0.8 seconds will cause the seeker head to go to aircraft boresight. Depressing the cage/uncage switch for 0.8 seconds or more, will activate override (OVRD) mode.

72. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) During OVRD mode the head commands are removed from the missile after 300 milliseconds and the seeker attempts to self track. When angle of coincidence (AOC) becomes false, the head commands will be reapplied to slave the missile to the command LOS until AOC is true for 300 milliseconds. This cycle will continue as long as the missile is in OVRD mode. Pressing and releas-

ing the cage/uncage switch for less than 0.8 seconds will step LOS and reset OVRD mode. OVRD mode will be reset upon launch, station step, LOS step, or deselection/reselection.

73. Head commands for boresight mode drive the missile seeker head to aircraft boresight.

74. Head commands are not available in cage mode (backup mode). During cage mode, missile seeker is positioned to missile boresight.

75. **Head Command - After AFC 253 or 292.** The head command signal drives the missile seeker head to a predetermined position computed by the MC system. The MC system uses mode commands, MSI track file data and missile seeker head position to determine head command. Compensation for the selected missile position on the aircraft in reference to the aircraft boresight and wing flexing is also used for head commmand computations.

76. The selected AIM-9 sends acquisition lambda and left/right reference signals to the weapon station encoder-decoder. These signals are modified to acquisition lambda X, Y, and X+Y which is the present seeker head position. The acquisition lambda functions are sent to the armament computer. The armament computer sends the data to the MC system as acquisition lambda X and Y.

77. The MC system compares the acquisition lambda data with the computed seeker head position for the Sidewinder mode selected. The difference signal is sent to the armament computer as missile head command. The head command is sent to the selected station encoder-decoder that sends the signal to the missile to drive the seeker head.

78. If a Launch and Steer (L&S) target is designated and Sidewinder is the selected weapon, the priority missile seeker head is commanded to the L&S target line of sight (LOS). When the angle of coincidence between the missile line of sight and MSI target line of sight is 1.5 degrees or less and audio threshold is exceeded, the missile is commanded to lockon. If the LOS to the target is more than 26 degrees off missile boresight, the missile is slaved to 15 degrees off missile boresight toward the LOS and held. The seeker will again be slaved to the target when the angle becomes less than 26 degrees. Once the seeker head has been slaved to MSI L&S LOS, the seeker head will lock onto the target when angle of coincidence and audio threshold requirements are met.

79. Head commands for boresight mode drive the missile seeker head to aircraft boresight.

80. Head commands are not available in cage mode (backup mode). During cage mode, missile seeker is positioned to missile boresight.

81. **Seeker Lockon.** When seeker lockon is activated, the missile tracking circuits are enabled to drive the seeker head. To enable lockon operation, manual uncage is applied to the missile and head command is removed. Lockon is a function of audio threshold, angle coincidence, cage/uncage switch and mode. At lockon, a chirp audio tone is sent to the headset(s) by AIM-9L missiles and a steady lock-on audio tone is sent by AIM-9M missiles.

82. Audio threshold is used by the armament computer to determine that signal strength from the detected target is strong enough for lockon. The audio from the AIM-9 missile is compared to a fixed programmed value. If the audio is above the threshold value, audio threshold exceeded is set.

83. Angle coincidence is a function of the selected mode and the seeker head position. SEAM, FLIR and boresight modes require angle coincidence to enable the lockon function.

84. SEAM and FLIR mode lockon is automatically activated when audio threshold exceeded and angle coincidence is set.

85. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) OVRD mode lockon is automatically activated when angle coincidence is true for more than 300 milliseconds.

86. In SEAM, angle coincidence is set when missile line of sight is within 1.5° of radar line of sight. In SEAM, when seeker head position is more than 20° from boresight and nutation is commanded, angle coincidence is set when missile line of sight is within 3° of radar line of sight.

87. AFTER AFC 253 OR 292, angle of coincidence is set when missile line of sight is within 1.5° of an L&S target line of sight. When seeker head position is more than 26° from boresight and natation is commanded, angle coincidence is set when missile line of sight is within 3° of L&S line of sight.

88. Boresight mode lockon is activated when audio threshold is exceeded and angle coincidence is set and the cage/uncage switch is pressed. In boresight, angle coincidence is set when the missile line of sight is within 1.5° of aircraft boresight.

89. Cage (backup) mode lockon is activated when audio threshold exceeded is set and the cage/uncage switch is pressed.

90. If launch is initiated and lockon has not been activated, missile lockon is set without audio threshold exceeded and angle coincidence being set.

91. Seeker break lock is done by pressing the cage/uncage switch after lockon has been established, stepping the priority station or loss of audio threshold exceeded.

92. Slaved to Boresight - AFTER AFC 253 OR 292. When L&S does not exist or the LOS has been changed by pressing and releasing the cage/uncage switch at the L&S, the selected missile will be slaved to aircraft boresight. If audio and AOC are true pressing the cage/uncage switch for less than 0.8 seconds will remove head commands to the missile. If audio is not true and there is no L&S, pressing and holding the cage/uncage switch will command the boresight autolock enable mode. If seeker is slaved to boresight and an L&S is created, the seeker will be slaved to the L&S position.

93. Boresight Autolock Enable. When AIM-9 is selected the AIM-9 missile is slaved to boresight, with the cage/uncage switch press and held, with audio and L&S criteria not true the seeker will be caged to boresight. While caged to boresight, SMS audio threshold and AOC critieria must be true to remove head commands. If the audio threshold and AOC are exceeded, head commands will be removed allowing the seeker to track. When the audio level drop below the SMS threshold, head commands will be reapplied and the seeker will be caged to the boresight position. The missile will remain in boresight autolock as long as the cage/uncage switch is pressed. If the threshold goes true then goes false the missile will not be allowed to track until the cage/uncage switch is released and then pressed again.

94. Slaved to L&S. When an L&S is created and the AIM-9 missile is not tracking at boresight, the selected missile will be slaved to the L&S LOS. Once AOC criteria has been met for 300 milliseconds the SMS will remove head commands to the missile. If the seeker drifts outside the AOC, head commands will be reapplied to the seeker until AOC has been true for 300 milliseconds.

95. **LAUNCH.** AIM-9 launch logic is satisfied when sidewinder is selected, MASTER switch is at ARM and gun/A/A missile trigger switch is pressed to detent 2. Launch is applied to the missile for 3.0 seconds ± 100 milliseconds or until the AIM-9 ident is removed.

96. If the AIM-9 ident exists after 3.0 seconds ± 100 milliseconds, the station status is set to hung and the station removed from the priority release sequence.

97. Releasing the trigger switch steps the priority station to the next available AIM-9 in the priority release sequence. AIM-9M missiles have a higher priority than AIM-9L missiles.

98. **DISPLAYS - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.** The MC system uses sidewinder data from the SMS and data from the radar system to display the sidewinder functions. The sidewinder displays are stores, head-up display (HUD) and radar display. Other displays (indicators) are the lock/shoot light assembly on the canopy arch. Figure 1 shows the sidewinder displays.

99. **DISPLAYS - AFTER AFC 253 OR 292.** The MC system uses Sidewinder data from the SMS and data from the MSI trackfiles to display the Sidewinder functions. When a Sidewinder missile is slaved to MSI L&S target LOS, the system sensors contributing to the MSI trackfile correlation algorithm are displayed under the altitude box on the HUD display. Other displays (indicators) are the lock/shoot light assembly on the canopy arch. Figure 1 shows the Sidewinder displays.

100. Stores Display. Stores display is selected for display on the left DDI when A/A aircraft master mode is selected, or when STORES is selected from the menu display DDI pushbutton switch. Stores display is blanked when MC 2 fails (cage mode).

101. When the armament computer weapon insertion panel ARMAMENT switches for station 1, 2, 8 or 9 are set for AIM-9, 9L/9M is displayed at the station locations on the wing form. The stations with an AIM-9 ident, displays a missile form. The missile form and 9L/9M are removed when the AIM-9 has been released and separation is completed. Pylon stations 2 and 8 also display weapon count and L or R for the priority station.

102. When the wing tip thumbwheel is set for dummy AIM-9, D9 is displayed on the wing form.

103. Under 9L/9M, the station status will be displayed. Station status messages for AIM-9 are HUNG, DEGD, FAIL and SEL. Station 2 and 8 can also display LKD, ULK, H+ULK and H+LKD to indicate the status of the BRU-32 lock/unlock function.

104. When sidewinder is selected, SEL is displayed under 9L/9M of the first AIM-9 station in the priority release sequence. Thereafter, SEL is displayed for the station selected as a result of stepping the priority station with the sidewinder select function of the A/A weapon select switch or sidewinder launch completed function.

105. The MASTER switch status ARM or SAFE is displayed in the center of the wing form.

106. **Data Freeze Display - 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292**. The data freeze display is provided as an option on the stores display. This option is only available if the radar is in single target track, the missile is slaved to the radar line of sight, and the trigger second detent is depressed.

107. **Data Freeze Display - AFTER AFC 253 OR 292.** The data freeze display is provided as an option on the stores display. This option is only available if the seeker is in single target track L&S, the missile is slaved to the MSI L&S line of sight, and the trigger second detent is depressed.

108. Pressing the DATA pushbutton switch displays the weapon release data that was frozen and stored at actual or simulated weapon release. The data is displayed between the bottom line of the program parameters and the first line of cautions on the DDI. The data is stored until overwritten by new data at the next weapon release.

109. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) Parameters frozen and stored at weapon release are:

a. RNG - target range in feet.

b. VC - closing velocity in knots.

c. V - target velocity in Mach.

d. YALT - delta (differential) altitude in feet.

e. ASPCT - aspect angle in degrees.

f. RMAX - maximum range in nautical miles.

g. ALT - altitude in feet (with B for barometric source).

h. TAS - true airspeed in knots.

i. FPA - flight path angle in degrees.

j. ROLL - roll angle in degrees L (left) or R (right).

k. ERROR - error angles in milliradians U (up), D (down), L (left), and R (right).

l. RMIN - minimum range in nautical miles.

m. RNE - maximum range in nautical miles.

n. Raero - maximum range in nautical miles (161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292).

110. **WITH ARMAMENT COMPUTER CP 1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) Radar And HUD Displays.** Displays for launch and steering are on the HUD and radar displays. The radar display is on the right DDI. On aircraft AFTER AFC 253 OR 292, the attack display is made up from data in the multi-source integration trackfiles. Trackfile data comes from available sensor inputs. The attack display initializes on the right DDI.

111. Sidewinder Select and Weapon Count Display - the radar and HUD displays in figure 1 show weapon select (9L/9M) and weapon count (6). The 6 indicates the number of AIM-9 sidewinders that are available for release. The symbol counts down when an AIM-9 is released. An X through the 9L6/9M6 shows the MASTER switch status. The X indicates SAFE and the removal of the X indicates ARM is selected.

112. Attack/Steering Symbols. The symbols used to steer the aircraft and indicate launch logic are listed below:

a. Range Symbol and Tab - Target range is displayed on the radar display as a range symbol superimposed on the B-sweep and on the HUD as the range tab on the range bar. The range symbol and tab are

displayed when the MC system is receiving range track data from the radar system (SEAM MODE). These symbols are used with Rmax, Rmin, Rne, and Raero to determine the in range functions.

b. Rmax, Rmin, Rne, and Raero. Rmax is the maximum range an AIM-9 can be launched and hit the target. Rmin is the minimum range the AIM-9 can be launched. Rne is the range at which the target will remain within maximum missile range even if the target turns instantaneously to a 180 degree (tail) aspect. Raero is displayed when the launch aircraft has more velocity than the missile but the missile is still capable of a 5g maneuver. These symbols are displayed on the radar display along the target azimuth line and on the normalized in range display on the HUD.

c. The in range function is set when the range symbol or range tab is between Raero and Rmin symbols. These symbols are displayed when range track data is received by the MC system.

d. ASE Circle - The ASE circle is displayed during SEAM mode when range/angle track is being received by the MC system. The ASE circle for AIM-9 is a fixed size, however, at seeker lockon the ASE circle expands to a larger circle. The ASE circle is used with the steering dot for aircraft maneuvering.

e. Steering Dot - The steering dot is displayed during SEAM mode when the seeker head and radar are tracking the same target. Computations for the steering dot will put the aircraft in a tailchase (pure pursuit) attack when the dot is positioned inside the ASE circle.

f. Target Designator - The TD symbol is displayed on the HUD during radar range/angle track as a function of radar line of sight. The symbol is used with the seeker circle to aid seeker lockon and provide a visual indication when lockon has been set.

g. Seeker Circle - The sidewinder seeker circle is used during acquisition and boresight modes. The circle is positioned on the HUD as function of missile seeker head position.

h. When the radar and missile seeker are locked on to the same target, and the seeker circle is displayed inside the TD symbol. If they are tracking different targets, the symbols are displayed as independent functions.

i. During boresight and cage operation, the seeker circle is positioned inside the missile field of view circle. The aircraft is maneuvered to position the visual target in the field of view circle. When the audio tone is heard the cage/uncage switch is pressed for lockon.

j. Missile Field of View Circle - The missile field of view circle is displayed during boresight and cage modes. The circle represents the limits of seeker head detection when positioned at aircraft boresight.

k. Shoot Cue and Lock/Shoot Light - The shoot cue on the radar and HUD display and shoot light on the lock/shoot light assembly function the same. The lock light comes on when the radar is range/angle tracking.

l. The shoot light is steady when the conditions listed below are set:

(1) AIM-9 is selected with an AIM-9 ident.

(2) Radar and seeker head of selected AIM-9 are tracking the same target.

(3) Audio threshold exceeded is set.

(4) MASTER switch is at ARM.

(5) Steering dot is inside of ASE circle.

(6) Target range is less than Rmax or less than Raero if displayed.

m. The shoot light flashes when target range is less than Rne and greater than Rmin.

n. The strobe light on the lock/shoot light assembly is a high intensity light that flashes as a function of the shoot logic. The light operates during day operation when the WARN/CAUTION dimming control is at RESET on the INTR LT control box panel assembly. During night operation the strobe light is disabled.

113. **AIM-9 SIMULATION (SIM) MODE.** (SIM) mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. For AIM-9 sidewinder mode to operate, one or more AIM-9 must be loaded on a weapon station. For detailed description of SIM mode operation, refer to WP026 01 in this manual.

114. **AIM-9 BUILT-IN TEST.** Table 1 lists the built-in test (BIT) modes and the signals tested for the modes. These BIT tests determine the station status FAIL and DEGD on the stores display.

115. FAIL status is set when a BIT fails one of the signals listed:

a. armament mux bus

b. AIM-9 ident

c. coolant control

d. master arm (AIM-9)

e. launch command

116. DEGD status is set when a BIT fails one of the signals listed:

a. audio

b. acquisition lambda

c. head command

d. left/right reference

e. manual uncage

117. Acquisition lambda, head command and left/right reference are not tested during flight.

118. Initiated BIT with high current driver test is done only when an AIM-9 ident does not exist, MASTER switch is set to ARM, and ARMAMENT OVERRIDE switch is set to on.

119. **AIM-9 END TO END TEST.** With AIM-9 End To End Tester installed on station to be tested, the AIM-9 end to end test may be done at the end of maintenance bit by pressing cage/uncage switch on right throttle grip. Under TST for station tested, STBY, RDY, or FAIL will be displayed.

120. **JETTISON.** When an AIM-9 is loaded on a pylon weapon station (2 and 8), the AIM-9, LAU-7 or LAU-127 (AFTER AFC 253 OR 292) and LAU-115 will be jettisoned from the BRU-32 for selective and emergency jettison. AIM-9s are released for jettison unarmed.

121. Both jettison functions of the AIM-9 starts the separation from the BRU-32. BRU-32 release drops the LAU-115, LAU-7, LAU-127 (AFTER AFC 253 OR 292) and AIM-9.

122. Wing tip AIM-9's have no jettison ability.

123. **Selective Jettison.** To selective jettison the pylon AIM-9 weapons, the switch settings and functions listed below must be done:

a. All gear up and locked must be set (launcher unlocked).

b. JETT STATION SELECT switches LO/RO pressed to on.

c. SELECT JETT switch set to RACK LCHR or STORES.

d. MASTER switch set to ARM.

e. JETT switch pressed.

124. When the launcher does not release from the BRU-32, the auxiliary release function can be done. This is done by setting the AUX REL switch to ENABLE and repeating the selective jettison function listed above. Auxiliary release enables the auxiliary cartridge in the BRU-32 to allow a gravity release of the LAU-115.

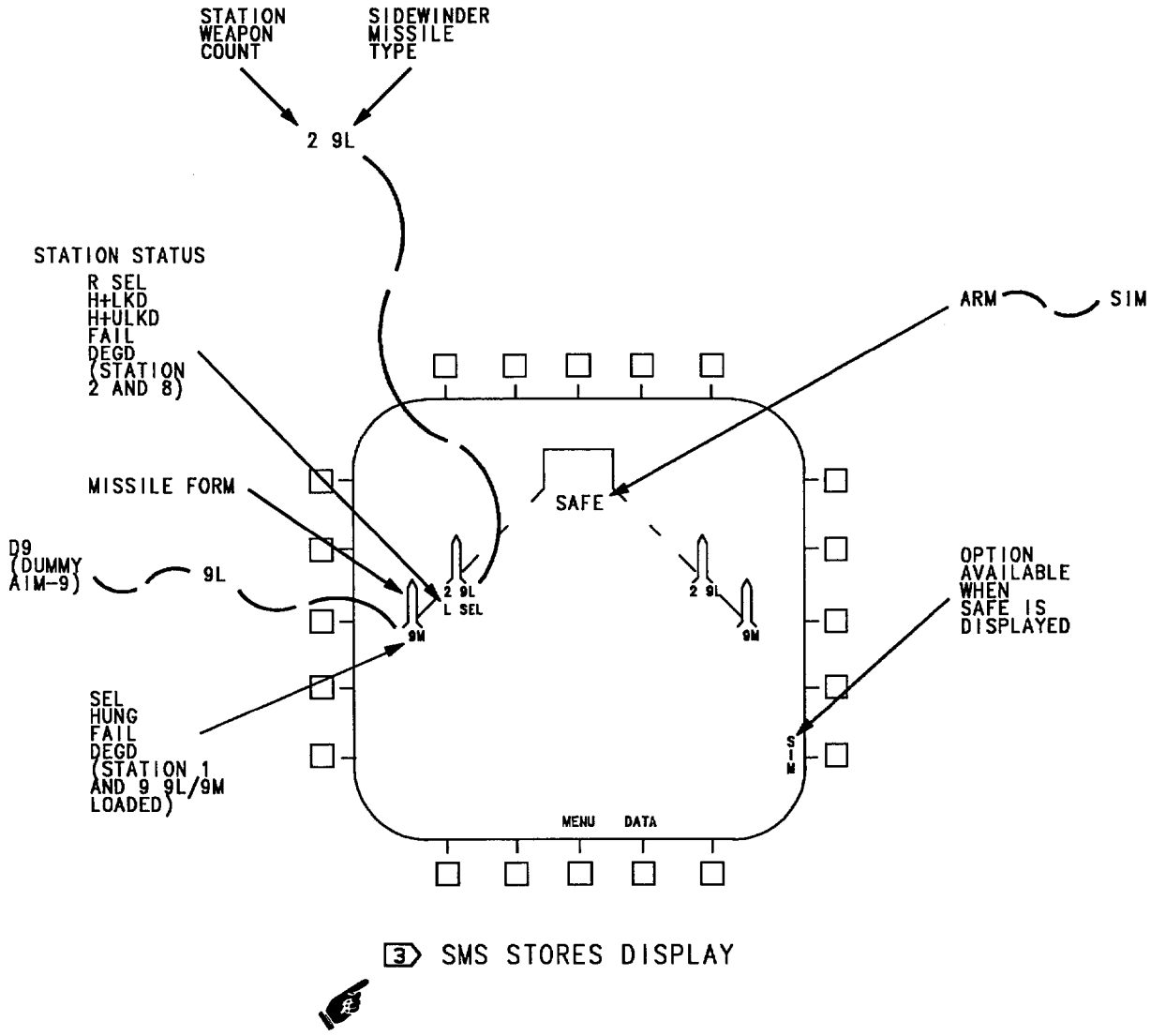
125. **Emergency Jettison.** The emergency jettison function of the pylon AIM-9 weapons can be done by doing the switch settings and functions listed below:

a. LDG GEAR handle UP or right main landing gear weight off wheels.

b. Pressing PUSH TO JETT pushbutton on EMERG JETT switch.

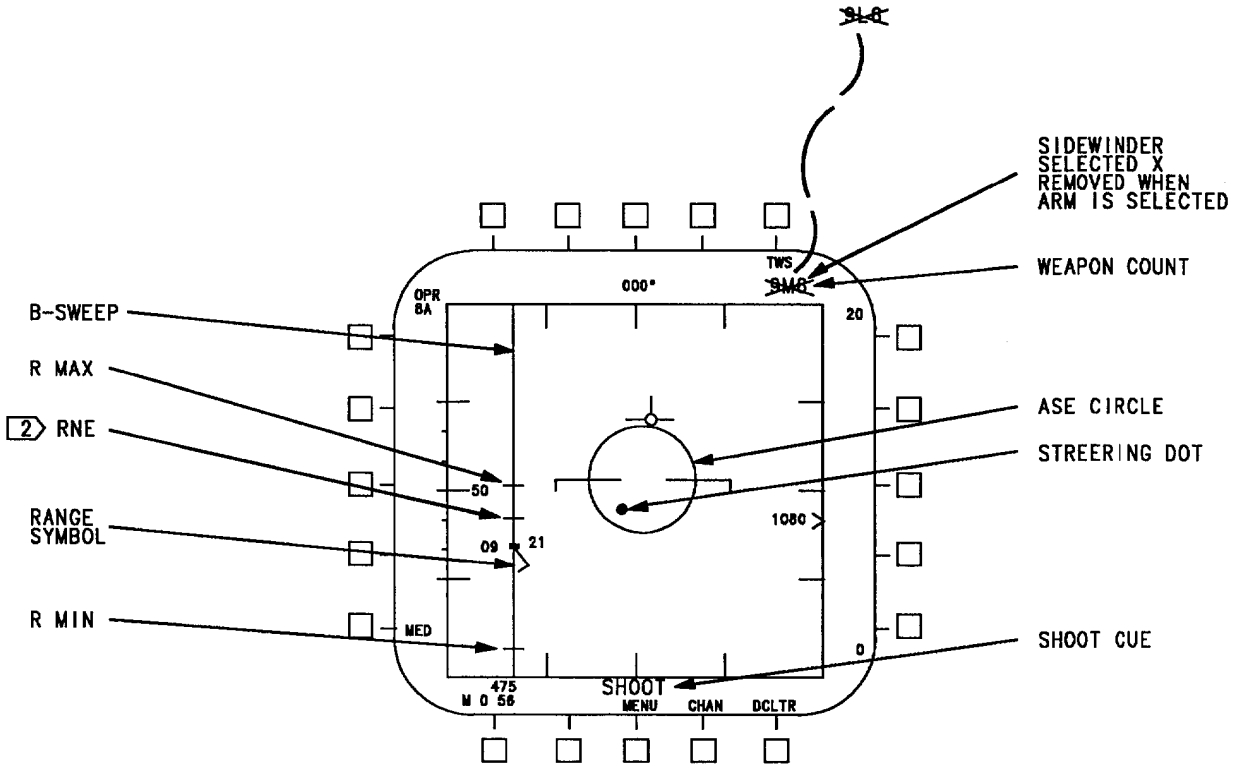
Table 1. AIM-9 Built-In Test

Test Signal	Initial BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
Armament Mux Bus	X	X	X	X
AIM-9 Ident (Station 1 and 9)	X	X	X	X
Coolant Control	X	X	X	X
Master Arm AIM-9 Driver			X	
Launch Command (Driver)			X	
Audio	X	X	X	X
Acquisition Lambda	X	X	X	X
Head Command	X	X	X	X
Left/Right Reference	X	X	X	X
Manual Uncage	X	X	X	X
AIM-9 Ident Left (Station 2 and 8)	X	X	X	X
AIM-9 Ident Right (Station 2 and 8)	X	X	X	X
Right Missile Select	X	X	X	

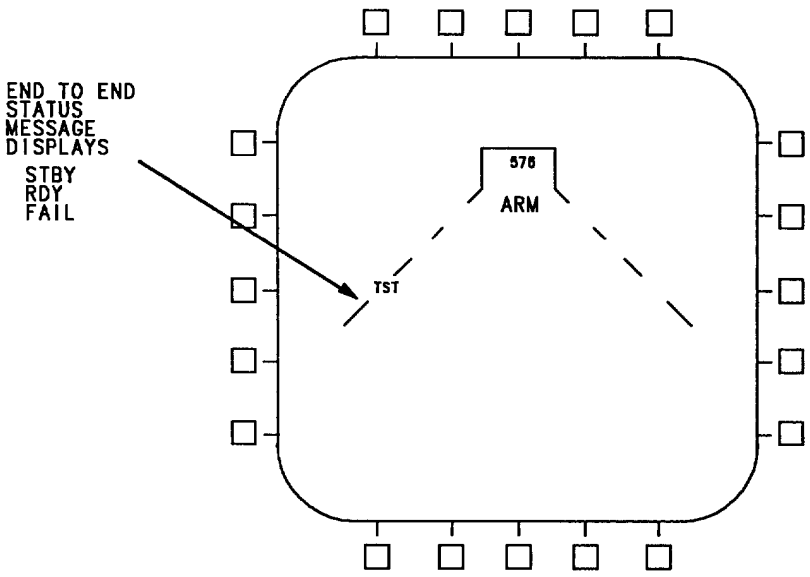


04600101

Figure 1. AIM-9 Sidewinder Displays (Sheet 1)



3 RADAR SINGLE TARGET TRACK AIM-9 DISPLAY



3 AIM-9 END TO END TEST DISPLAY

MASTER ARM AT ARM
CAGE/UNCAGE ACTUATED

04600102

Figure 1. AIM-9 Sidewinder Displays (Sheet 2)

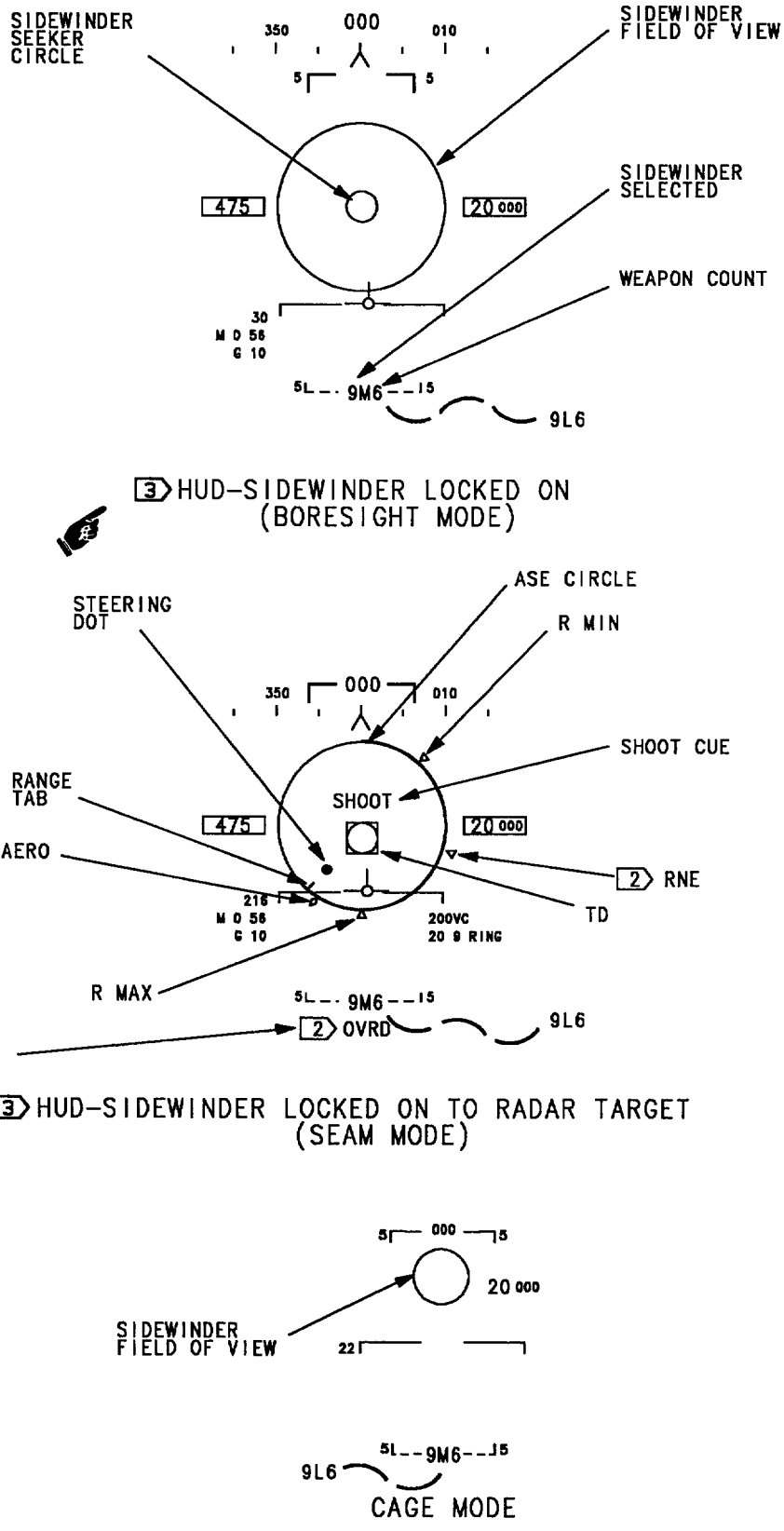


Figure 1. AIM-9 Sidewinder Displays (Sheet 3)

04600103

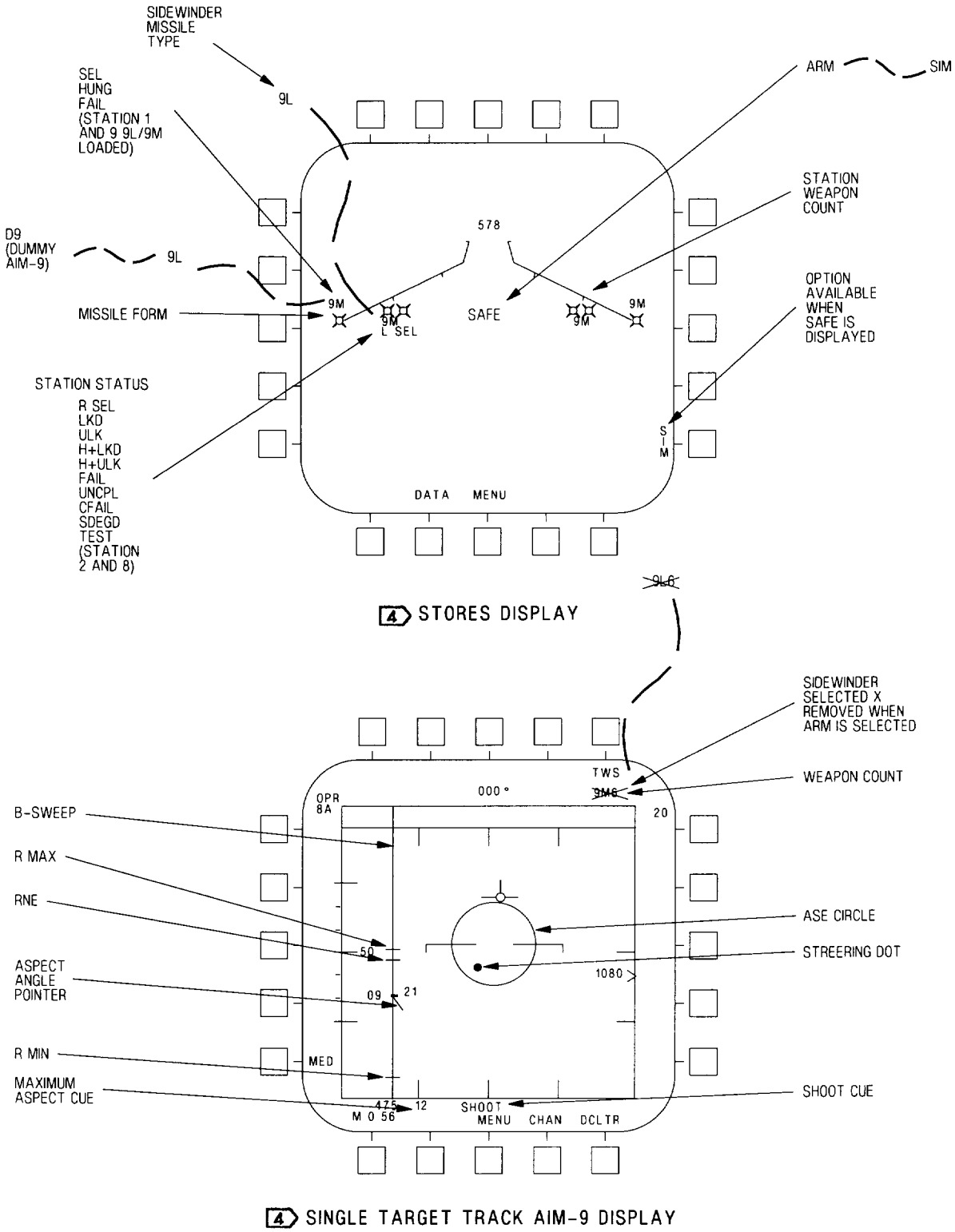
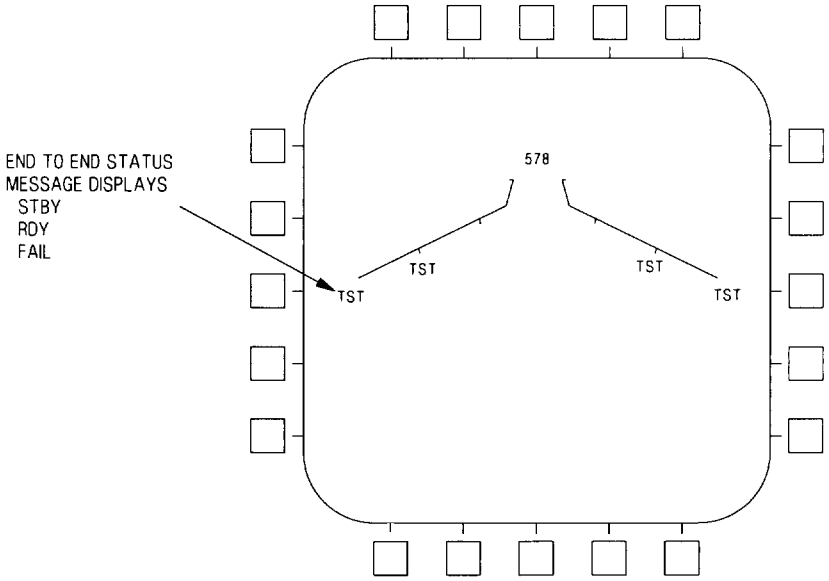


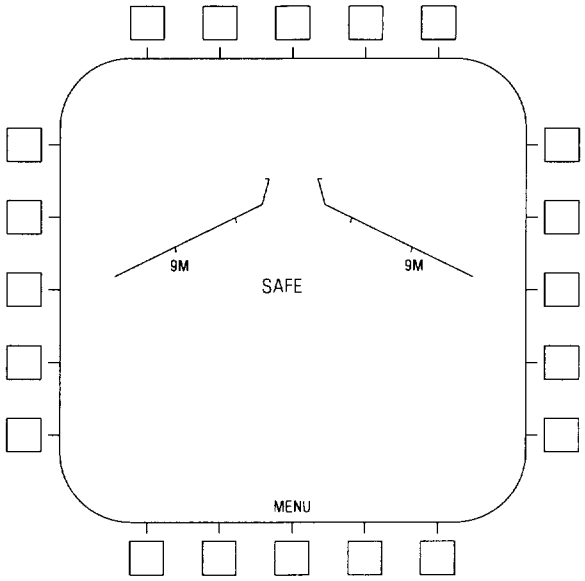
Figure 1. AIM-9 Sidewinder Displays (Sheet 4)

04600104



4 AIM-9 END TO END TEST DISPLAY

MASTER ARM AT ARM
CAGE/UNCAGE ACTUATED

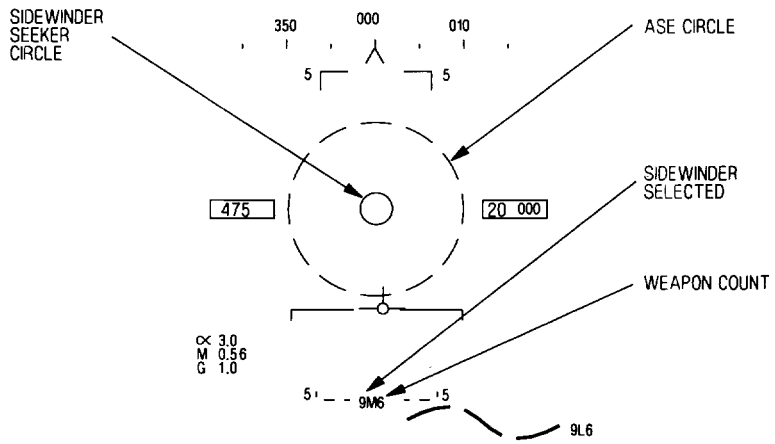


4 AIM-9 END TO END TEST DISPLAY

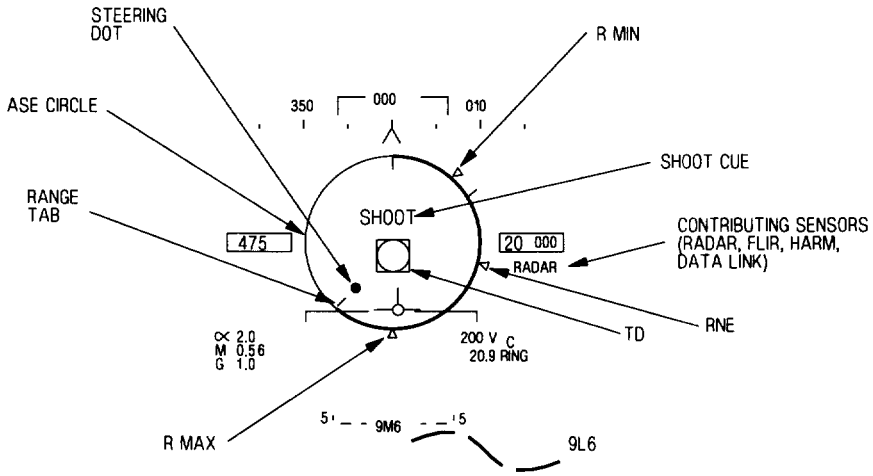
MASTER ARM AT SAFE,
ARMAMENT CODE SELECTED 80
L OR R OUTBD AND 9 WING TIP.

04600105

Figure 1. AIM-9 Sidewinder Displays (Sheet 5)



4 HUD-SIDEWINDER LOCKED ON (BORESIGHT MODE)



4 HUD-SIDEWINDER LOCKED ON TO RADAR TARGET

LEGEND

1. NONSTANDARD ABBREVIATIONS AND SYMBOLS, SEE WP002 01.

2 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

3 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292.

4 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292.

04600106

Figure 1. AIM-9 Sidewinder Displays (Sheet 6)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - AIM-9 SIDEWINDER SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

Subject	Page No.
AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic, Figure 3	12
AIM-9 Sidewinder Simplified Schematic, Figure 1	2
Guided Missile Launcher LAU-7( ) Simplified Schematic, Figure 2	10
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only

1. INTRODUCTION.

2. This work package provides support for the data in WP046 00.

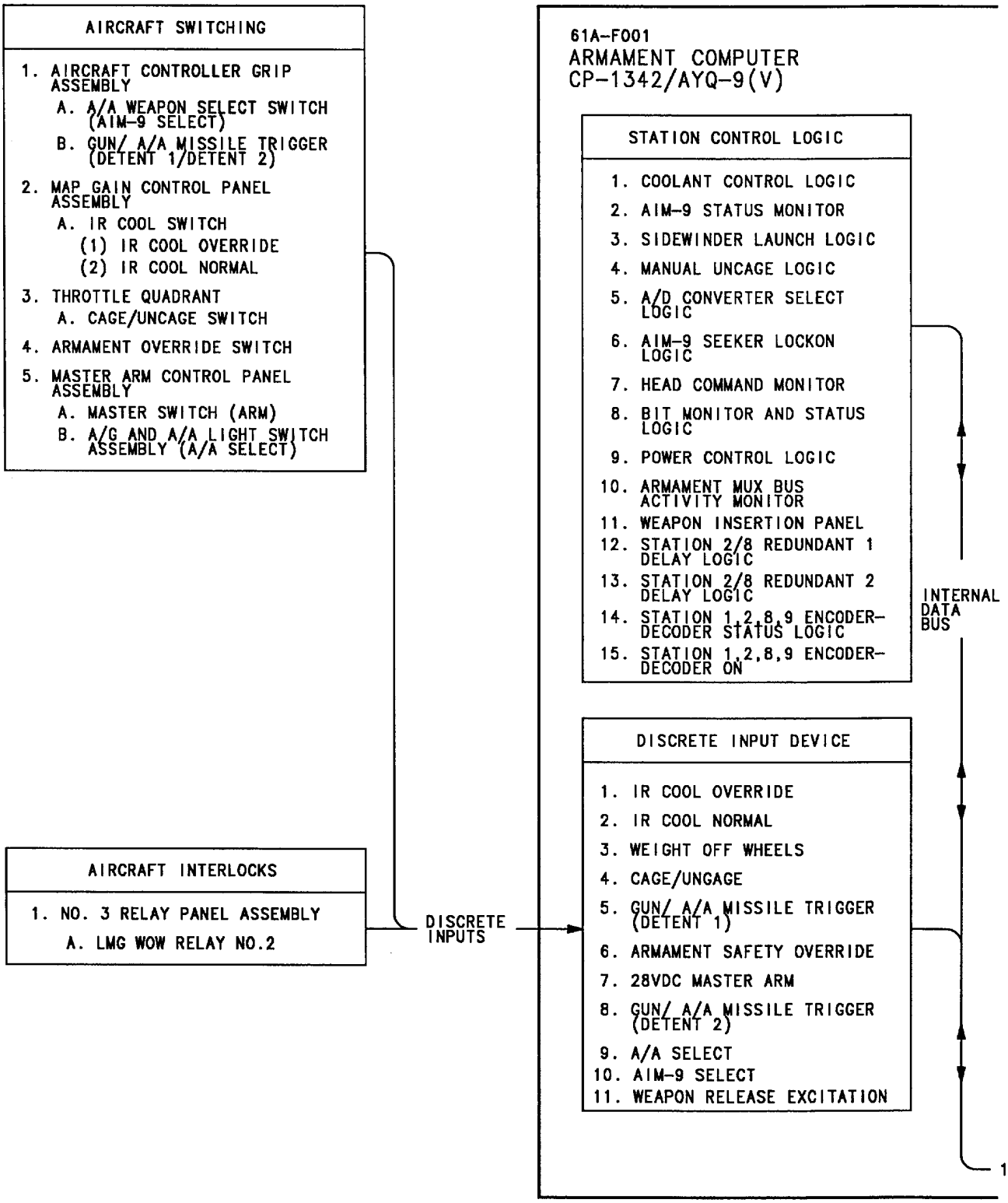
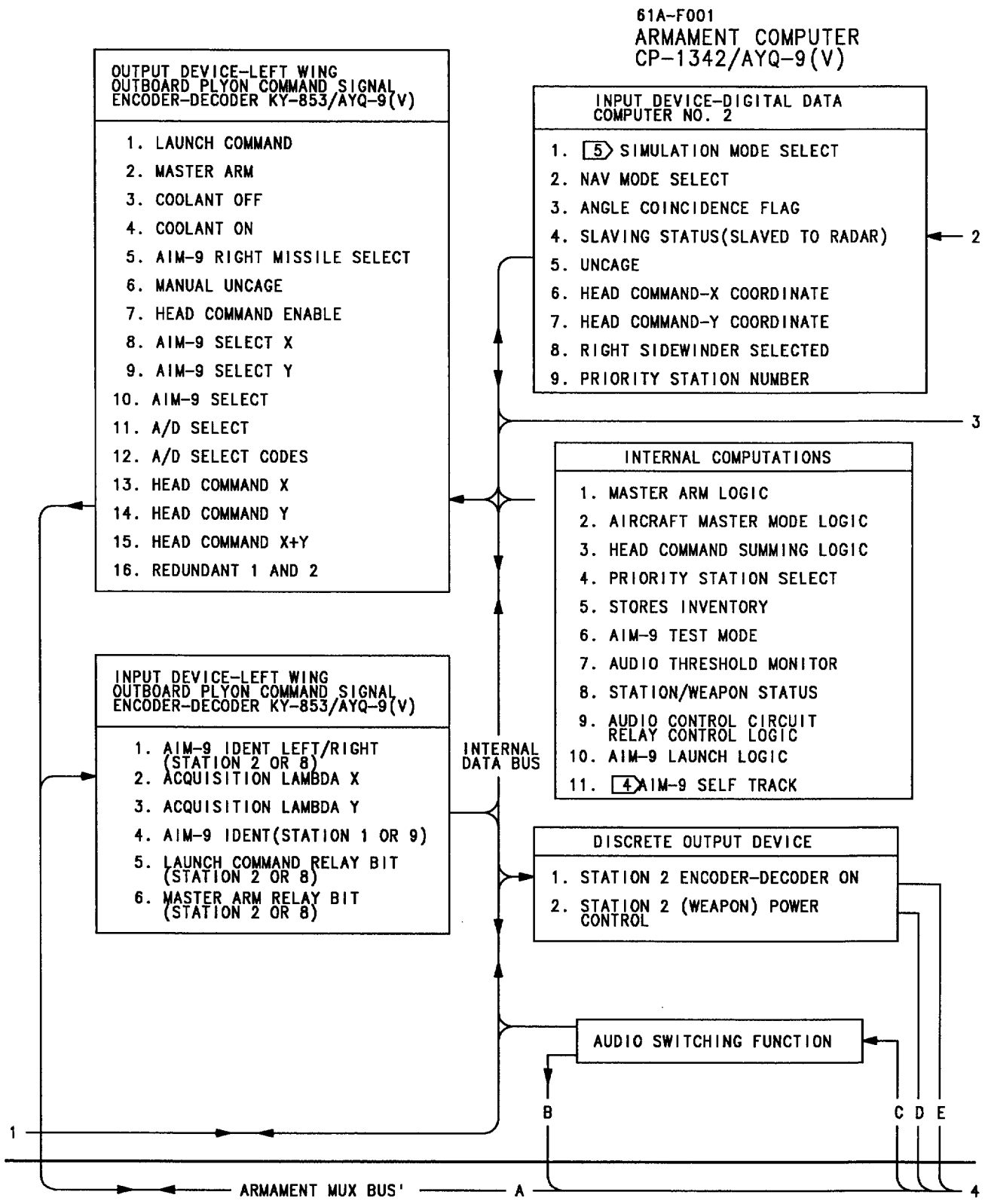
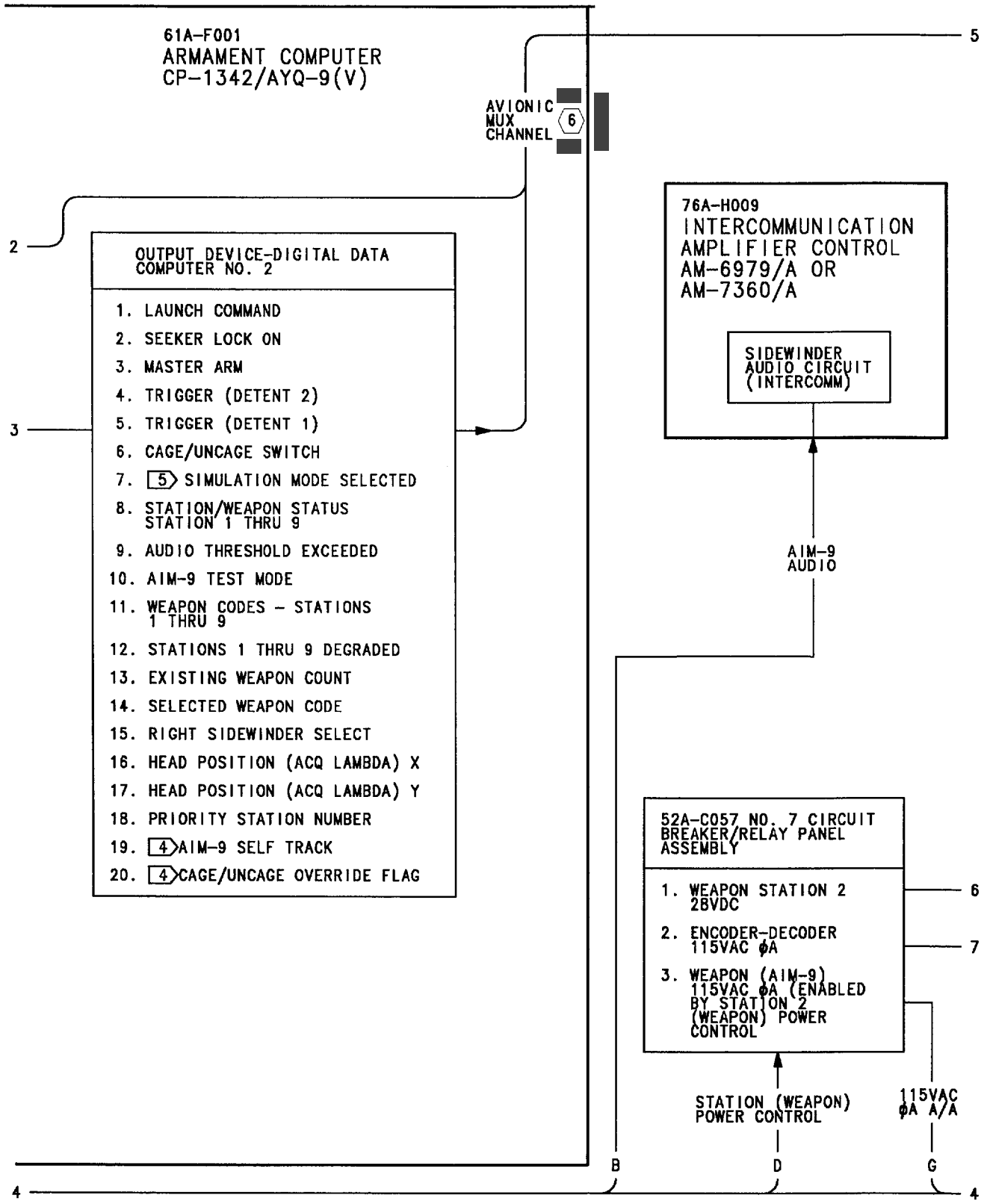


Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 1)



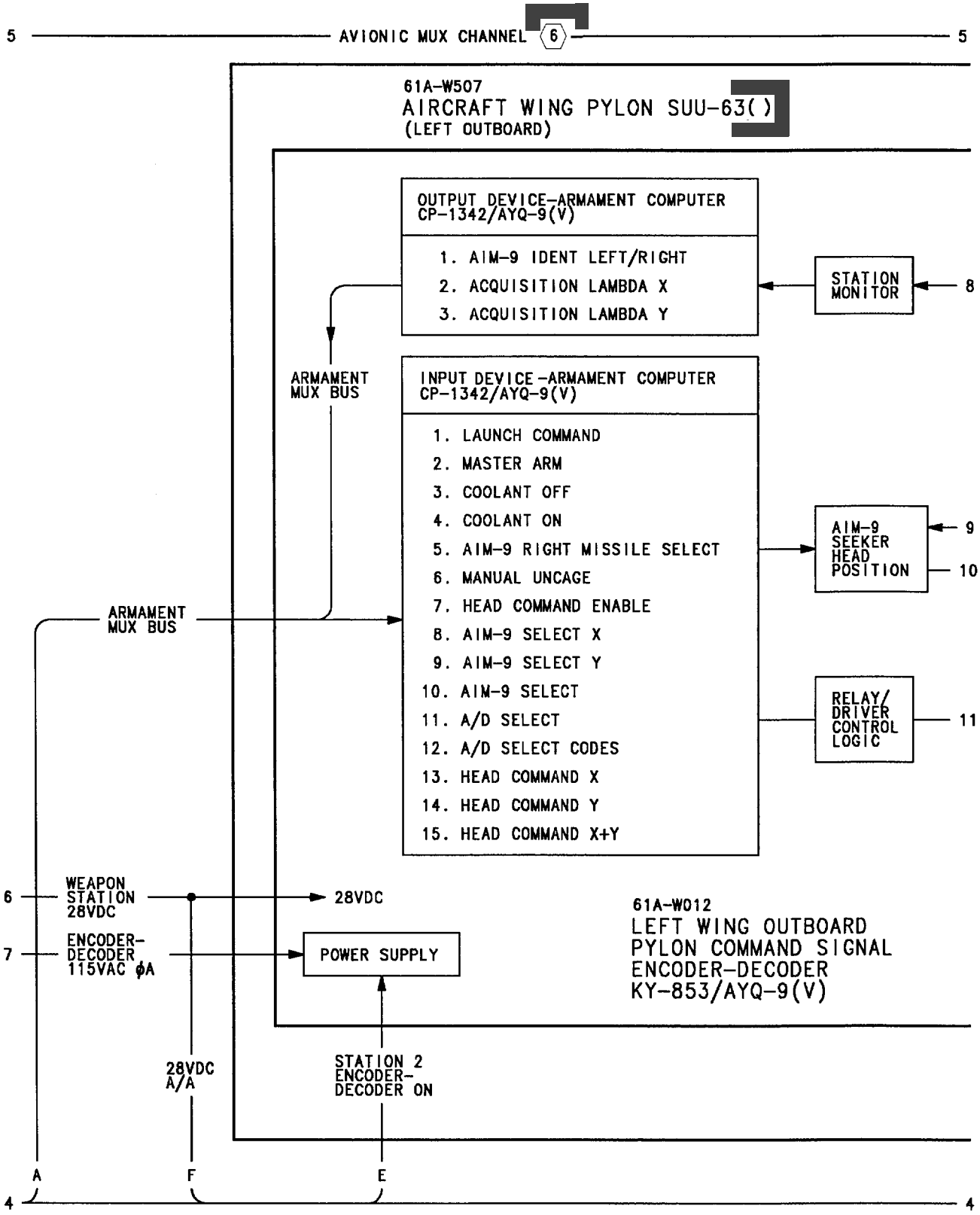
04700102

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 2)



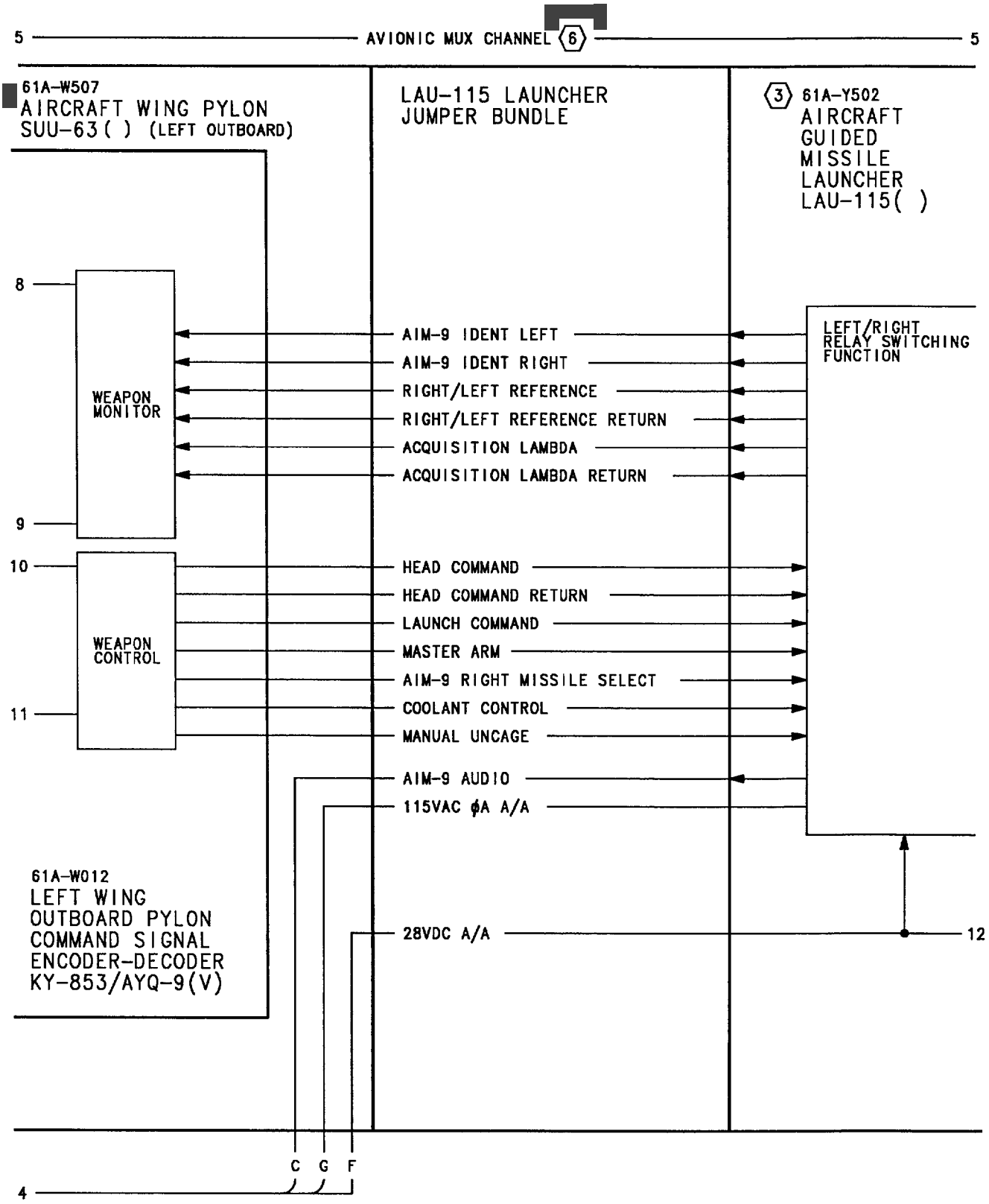
04700103

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 3)



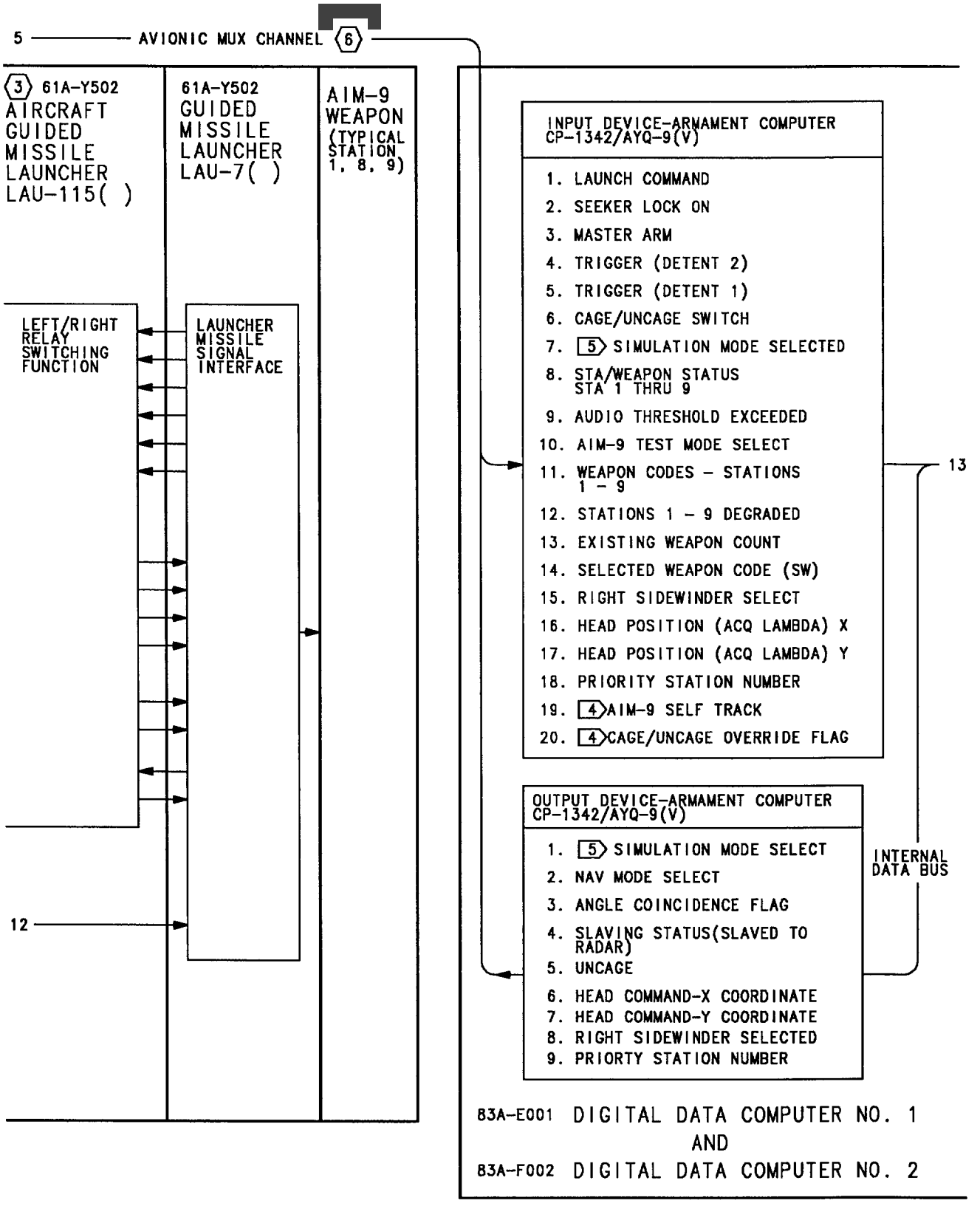
04700104

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 4)



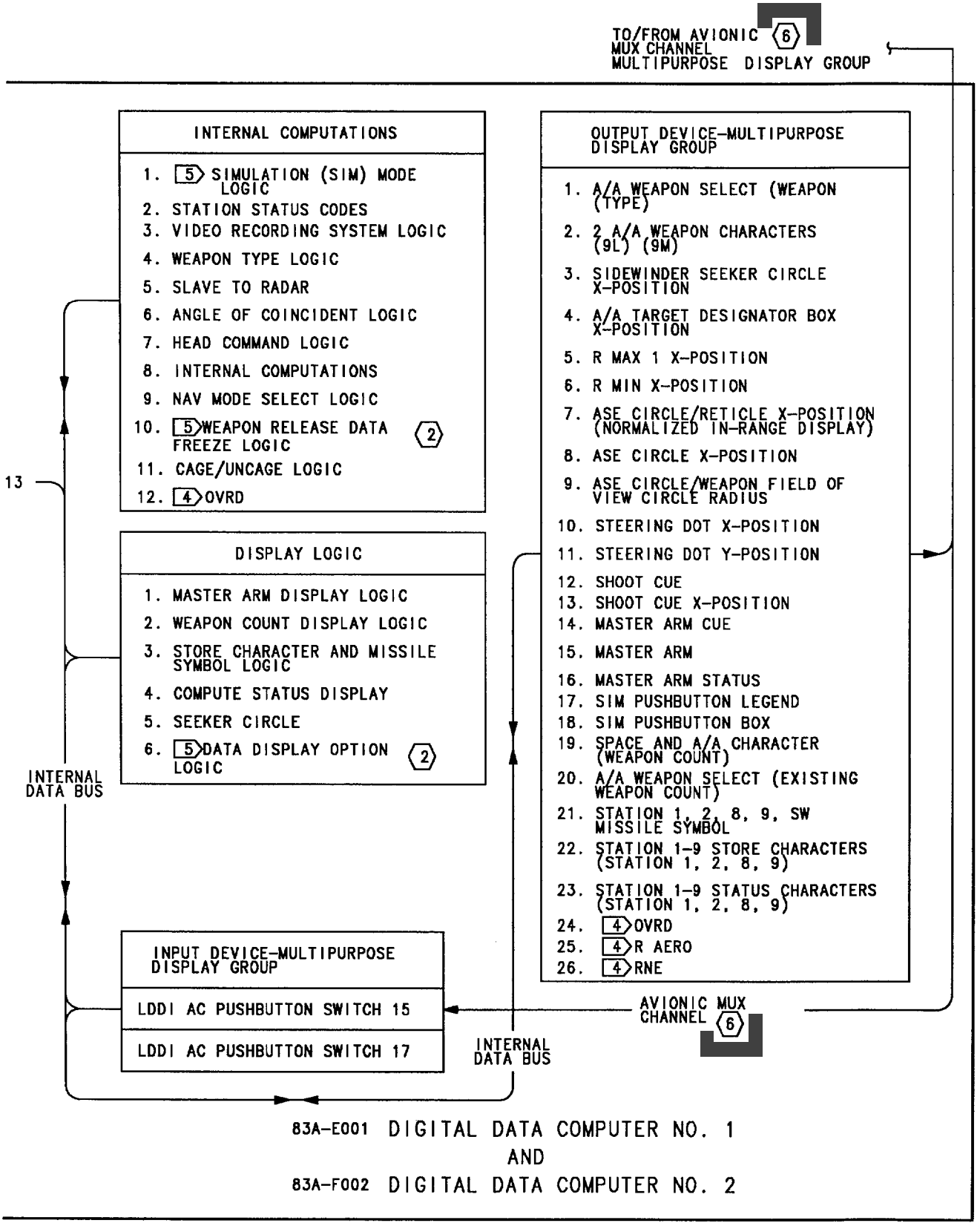
04700105

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 5)



04700106

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 6)



04700107

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 7)

LEGEND

1. ABBREVIATIONS: SEE WP002 01.

(2) REFER TO DATA FREEZE DISPLAY SIMPLIFIED SCHEMATIC, (A1-F18AC-740-110, WP061 01).

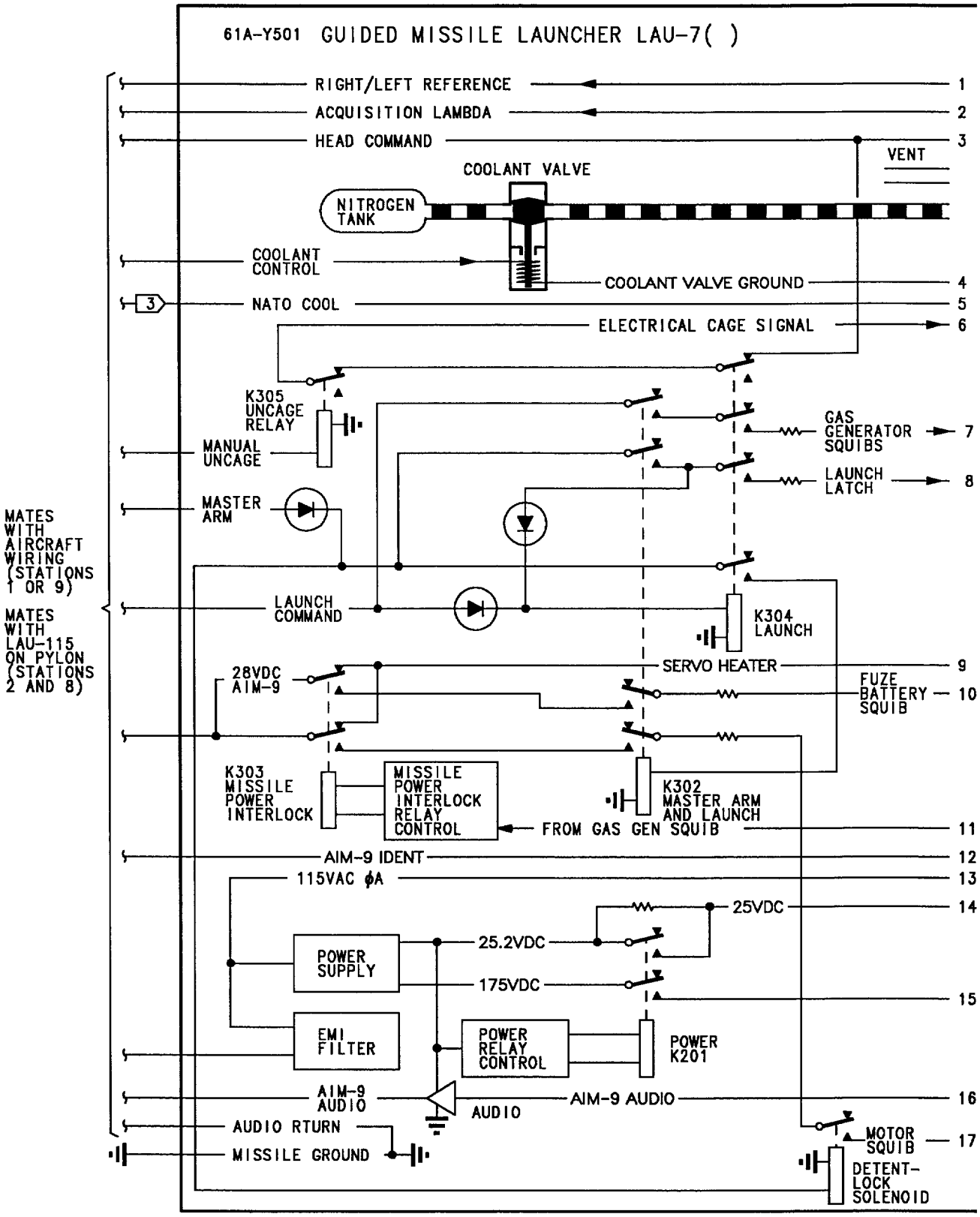
(3) LAU-115 PROVIDES RELAY SWITCHING AND INSTALLATION FOR TWO AIM-9 LAUNCHES (LAU-7).

4 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

5 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 85A AND UP DIGITAL DATA COMPUTER CONFIG/IDENT 87X AND UP (A1-F18AC-SCM-000).

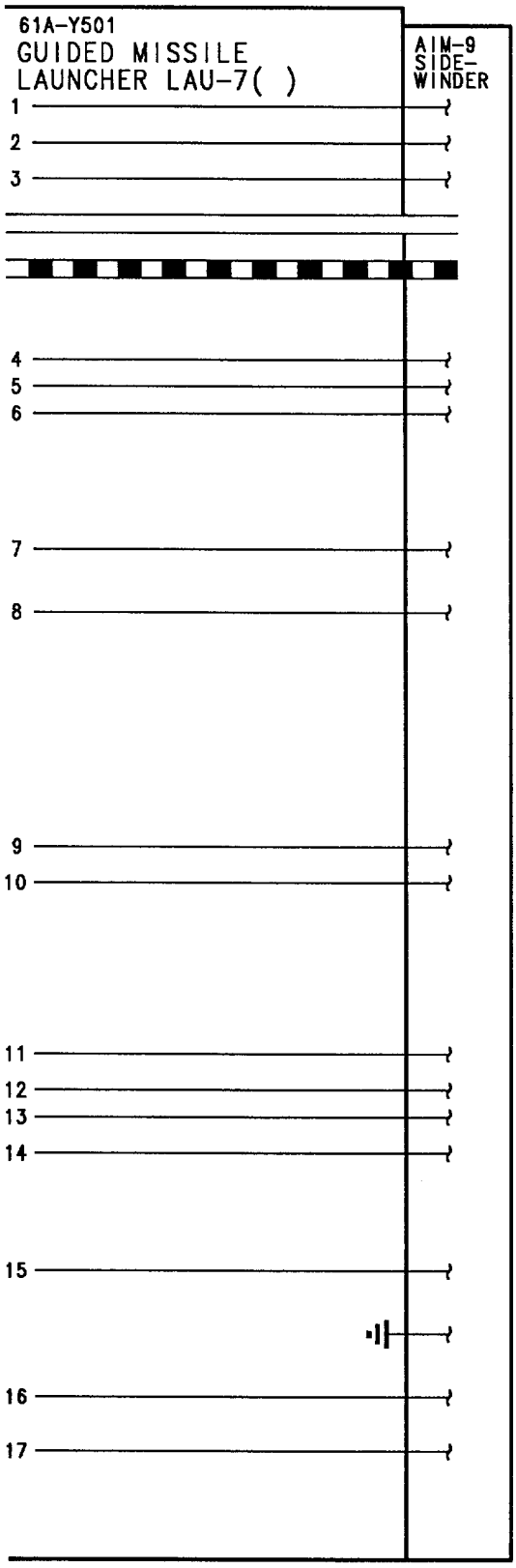
(6) SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 8)



04700201

Figure 2. Guided Missile Launcher LAU-7( ) Simplified Schematic (Sheet 1)



LEGEND

1. ABBREVIATIONS: SEE WP002 01
2. NONSTANDARD SYMBOLS: SEE WP002 01.
3. 162394 AND UP, ALSO 161353 THRU 161987 AFTER F18 AFC 74.

04700202

Figure 2. Guided Missile Launcher LAU-7( ) Simplified Schematic (Sheet 2)

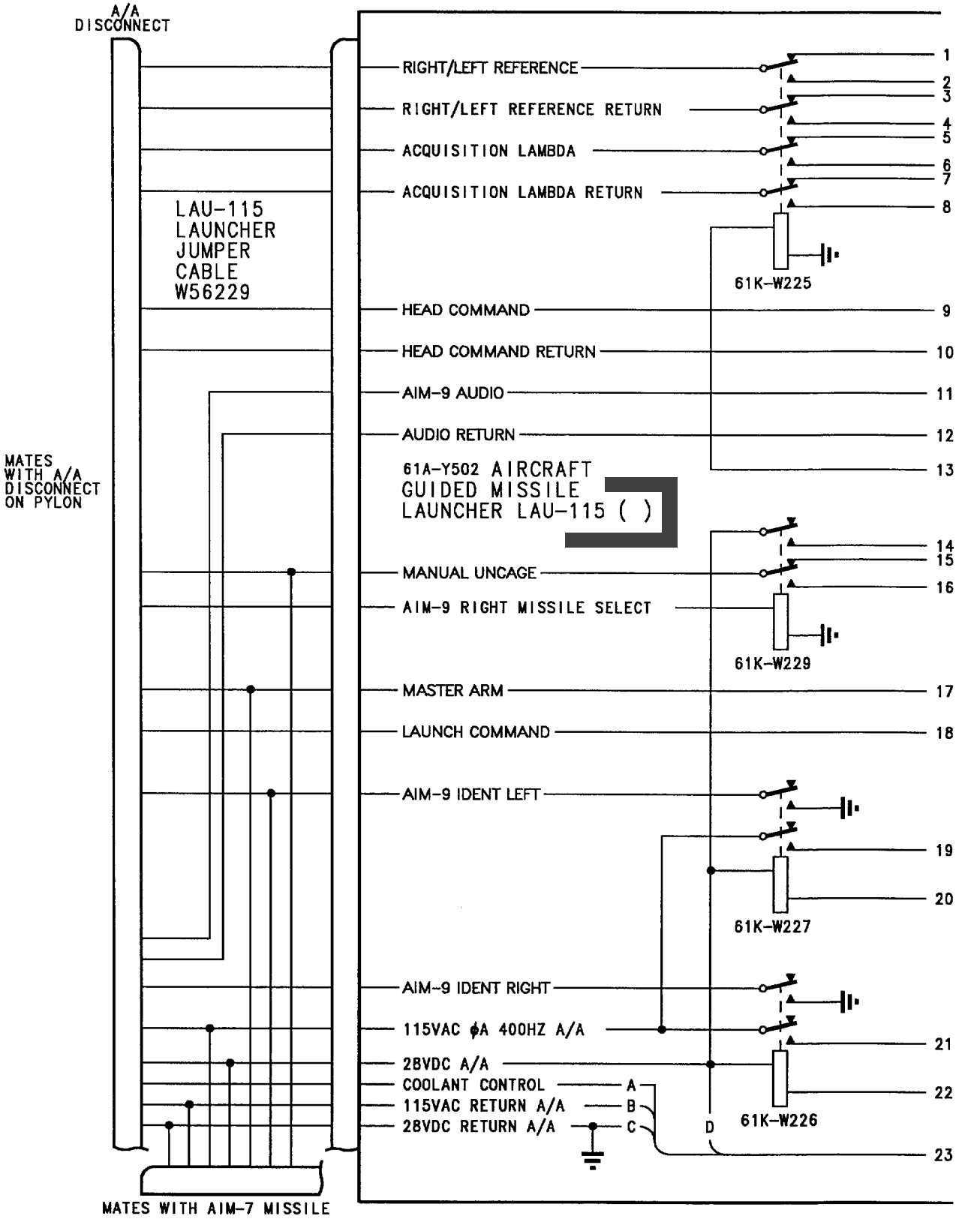


Figure 3. AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic (Sheet 1)

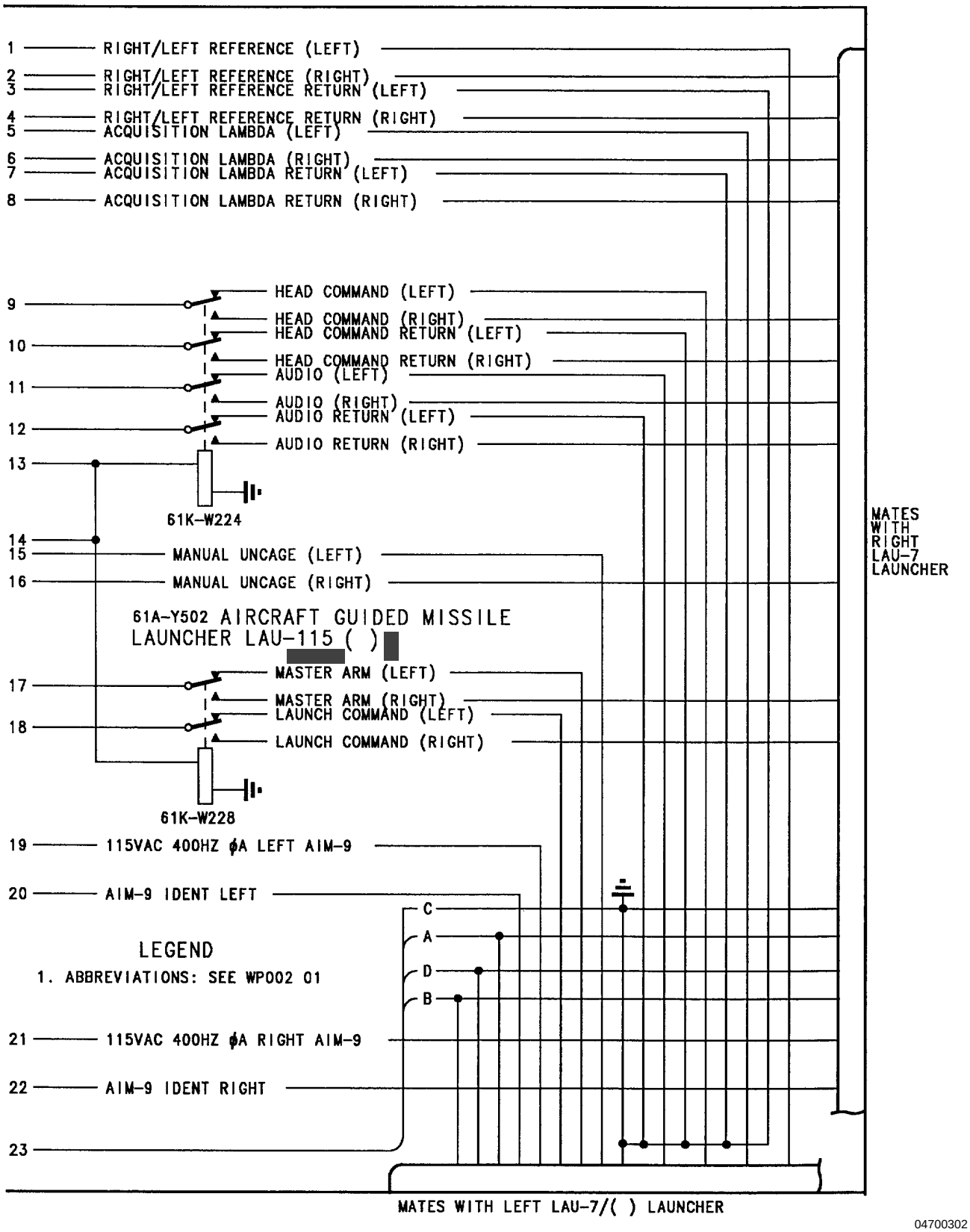


Figure 3. AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic (Sheet 2)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - WEAPON AUDIO SWITCHING

STORES MANAGEMENT SYSTEM

Reference Material

Stores Management System Locator WP014 00
Stores Management System Weapon Audio Switching Simplified Schematic WP047 02
Weapon Control Systems A1-F18AC-740-500
AIM-9 Sidewinder Avionic Interface Schematic WP048 00
AGM-45 Shrike Avionic Interface Schematic WP050 00

Alphabetical Index

Subject	Page No.
AGM-45 Shrike Operation	2
AIM-9 Sidewinder Operation	2
Introduction	1
Weapon Audio Operation	2

Record of Technical Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores management system (SMS) weapon audio switching operation is provided in this work package (WP). Additional SMS operation WPs are listed in WP001 00.

3. Refer to WP047 02 for the simplified weapon audio switching schematic. The simplified schematic shows interface between weapon stations, Armament Computer CP-1342/AYQ-9(V), and Intercommunications Amplifier Control AM-6979/A, AM-7360/A, or AM-7539/A (AFTER AFC 253 OR 292).

4. The simplified schematic shows the audio signal flow for AIM-9 sidewinder, stations 1, 2, 8, and 9, and for AGM-45 shrike stations 2 and 8.

5. A detailed AIM-9 schematic is shown in A1-F18AC-740-500, WP048 00, AIM-9 Sidewinder Avionic Interface Schematic. A detailed AGM-45 schematic is shown in A1-F18AC-740-500, WP050 00, AGM-45 Shrike Avionic Interface Schematic.

6. Refer to WP014 00 for component locations.

7. WEAPON AUDIO OPERATION.

8. Weapon audio operation in this work package is listed below:

a. AIM-9 sidewinder operation

b. AGM-45 Shrike operation

9. **AIM-9 SIDEWINDER OPERATION.** AIM-9 Sidewinder operation in this work package is listed below:

a. AIM-9 sidewinder missiles

b. launcher/missile interface

c. armament computer

d. intercommunications and tone system

10. **AIM-9 Sidewinder Missiles.** AIM-9 sidewinder missiles are carried on stations 1, 2, 8, and 9. Stations 2 and 8 can carry 2 AIM-9 sidewinders each. The AIM-9 sidewinder processes an audio signal output as a function of target detection and strength. The audio signal is processed for the priority AIM-9 weapon station with the priority release sequence being weapon station 2L, 8R, 2R, 8L, 1, and 9.

11. **Launcher/Missile Interface.** The AIM-9 audio signal is sent from the missile to Guided Missile Launcher LAU-7/( ) or LAU-127( ) (AFTER AFC 253 OR 292) where it is amplified in the launcher. On station 2 and 8, weapon audio is processed through the right missile select relay in Aircraft Guided Missile Launcher LAU-115( ) to allow audio reception from the left or right hand sidewinder on either station. On station 2 and 8 audio is then sent through Aircraft Wing Pylon SUU-63 to armament computer. On station 1 and 9, audio is sent from Guided Missile Launcher LAU-7/( ) to armament computer.

12. **Armament Computer.** Audio from the AIM-9 weapon station is sent to the armament computer audio switching relays. Audio switching relays in the armament computer are set to connect the selected station audio to the intercommunications and tone system. Enable logic for the relay drivers is programmed for the selected priority station. The output of the switching relays is also used, internal of the armament computer, for the audio threshold circuits.

13. AIM-9 missile lockon is a function of audio threshold along with angle coincidence, cage/uncage switch, and mode. At lockon, an audio tone is sent to the headsets. The AIM-9L missile provides a chirping audio tone indicating lockon and AIM-9M missiles provide a steady lockon tone.

14. Audio threshold is used by the armament computer to determine that signal strength from the detected target is strong enough for lockon. The audio from the AIM-9 missile is compared to a fixed programmed value. If the audio is above the threshold value, audio threshold exceeded is set.

15. If launch is initiated and lockon has not been activated, missile lockon is set without audio threshold exceeded and angle coincidence being set.

16. Seeker break lock is achieved by pressing the cage/uncage switch after lockon has been established, stepping the priority station or loss of audio threshold exceeded.

17. Relay BIT monitoring is used to indicate the relay coil function. BIT monitoring does not test the audio signal contacts of the relays. Audio select relay A15K4, when energized, connects 2 KHz BIT signal to the audio threshold circuits.

18. **Intercommunications and Tone System.** Selected AIM-9 audio output from audio switching relay logic in armament computer is sent to Intercommunications Amplifier-Control AM-6979/A, AM-7360/A, or AM-7539/A (AFTER AFC 253 OR 292). AIM-9 audio is then sent to the pilot/instructor's headset.

19. **AGM-45 SHRIKE OPERATION.** AGM-45 shrike operation in this work package is listed below:

a. AGM-45 Shrike missiles

b. armament computer

c. intercommunications and tone system

20. **AGM-45 Shrike Missiles.** AGM-45 Shrike missiles are carried on wing pylon stations 2, 3, 7, and 8. Weapon audio is provided for station 2 and 8 only. The AGM-45 Shrike processes an audio signal output as a function of target detection. The audio signal is processed for the priority AGM-45 station 2 or 8 weapon station with the release sequence being weapon station 2, 8, 3, and 7.

21. Weapon audio for AGM-45 is sent from the missile, where it is amplified, through Aircraft Guided Missile Launcher LAU-118 to the armament computer.

22. **Armament Computer.** Audio from the AGM-45 weapon station is sent to the armament computer audio switching relays. Audio switching relays in the armament computer are set to connect the selected station audio to the intercommunications and tone system. Enable logic for the relay drivers is programmed for the selected priority station.

23. Weapon audio for AGM-45 shrike missile is amplified and sent to armament computer by the shrike missile when an emitting shrike compatible threat is detected by the shrike seeker head. Weapon audio correlates to the various threat emitting frequencies detected by the shrike seeker head. With no pilot/instructor initiated lockon capability, the shrike seeker head does not detect target signal strength for lockon.

24. **Intercommunications and Tone System.** Weapon audio from selected AGM-45, output from audio switching relay logic in armament computer, is sent to Intercommunications Amplifier-Control AM-6979/A, AM-7360/A, or AM-7539/A (AFTER AFC 253 OR 292). Weapon audio is then sent to the pilot/instructor's headsets.

25. Weapon audio for the AGM-45 heard in the pilot/instructor's headset is a frequency duplicate of the threat emitter being detected by the shrike seeker head.

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - WEAPON AUDIO SWITCHING SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 BEFORE F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

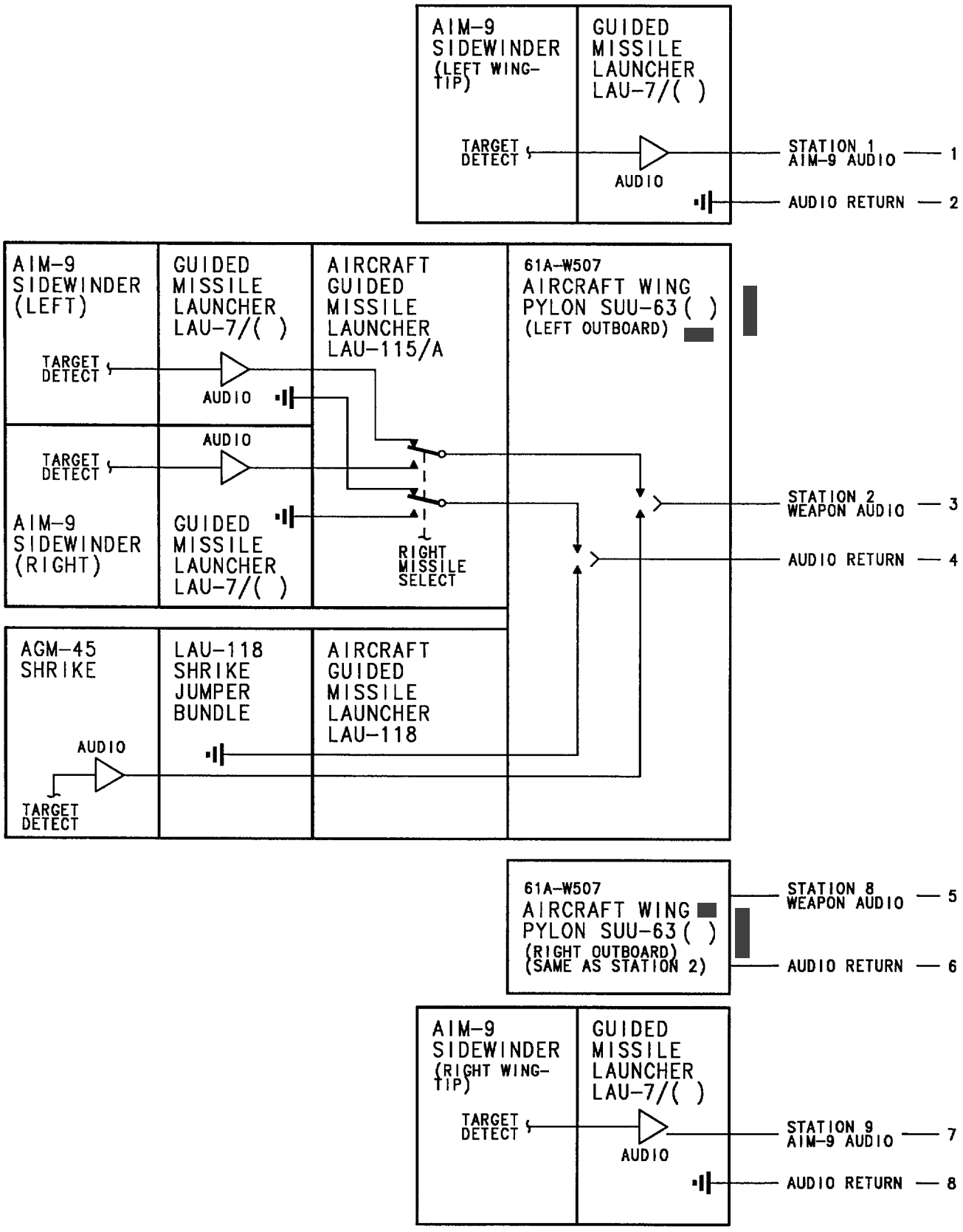
Subject	Page No.
Introduction	1
Weapon Audio Switching Simplified Schematic, Figure 1	2

Record of Applicable Technical Directives

None

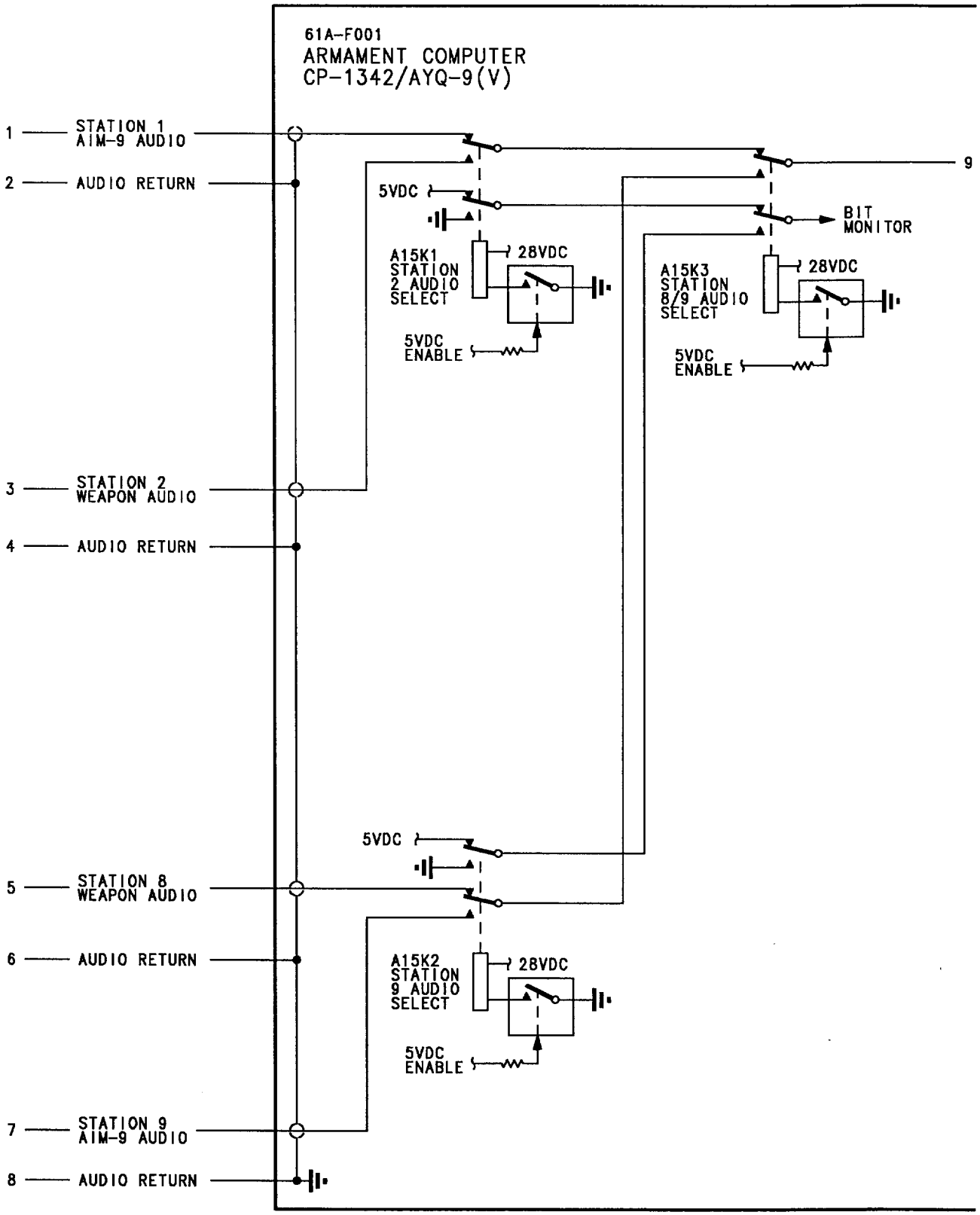
1. INTRODUCTION.

2. This work package provides support for the data in WP046 00, WP047 01 and A1-F18AC-740-110, WP055 01.



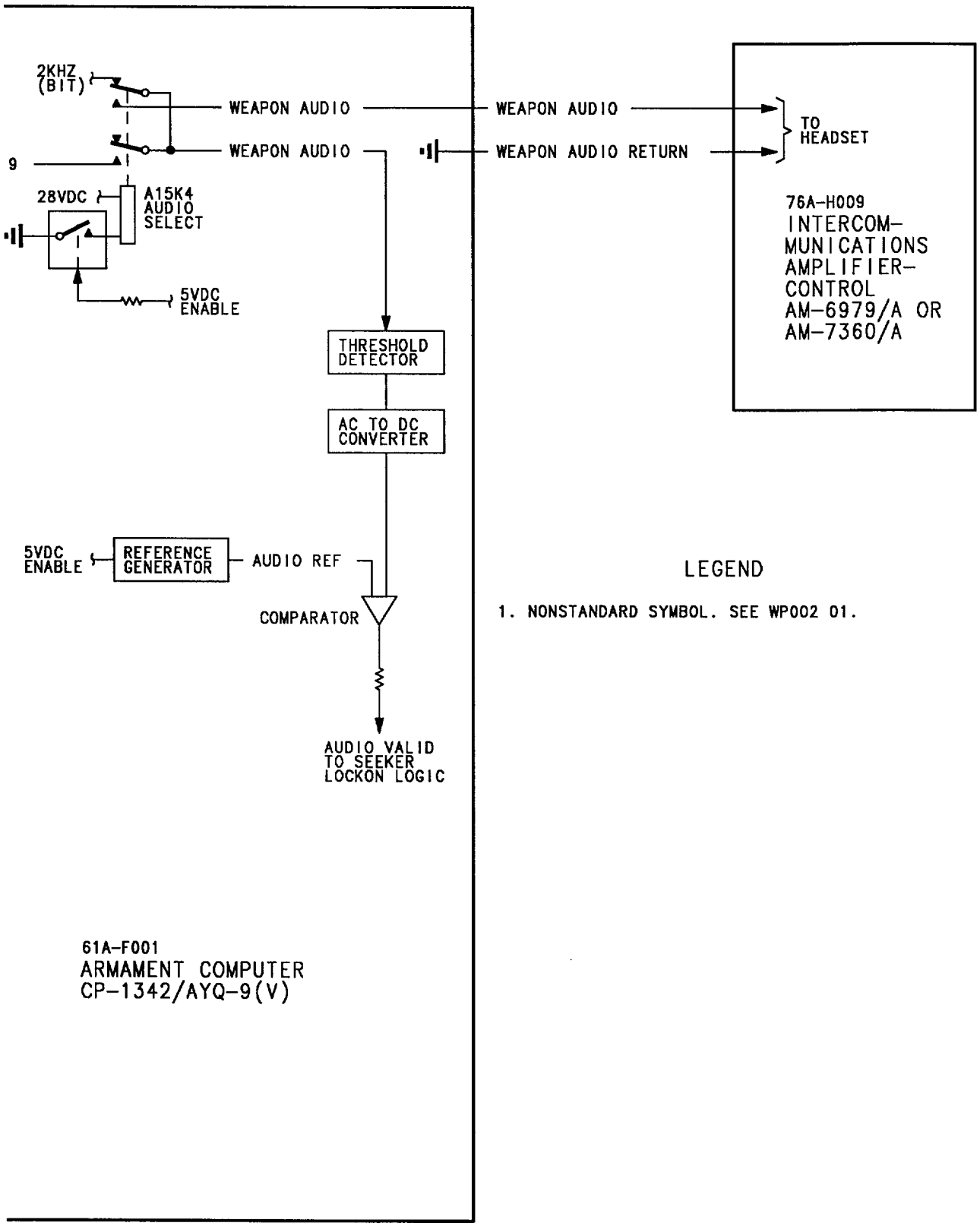
47020101

Figure 1. Weapon Audio Switching Simplified Schematic (Sheet 1)



47020102

Figure 1. Weapon Audio Switching Simplified Schematic (Sheet 2)



47020103

Figure 1. Weapon Audio Switching Simplified Schematic (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - AIM-9 SIDEWINDER SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

AIM-9 Sidewinder Operation WP046 00

Alphabetical Index

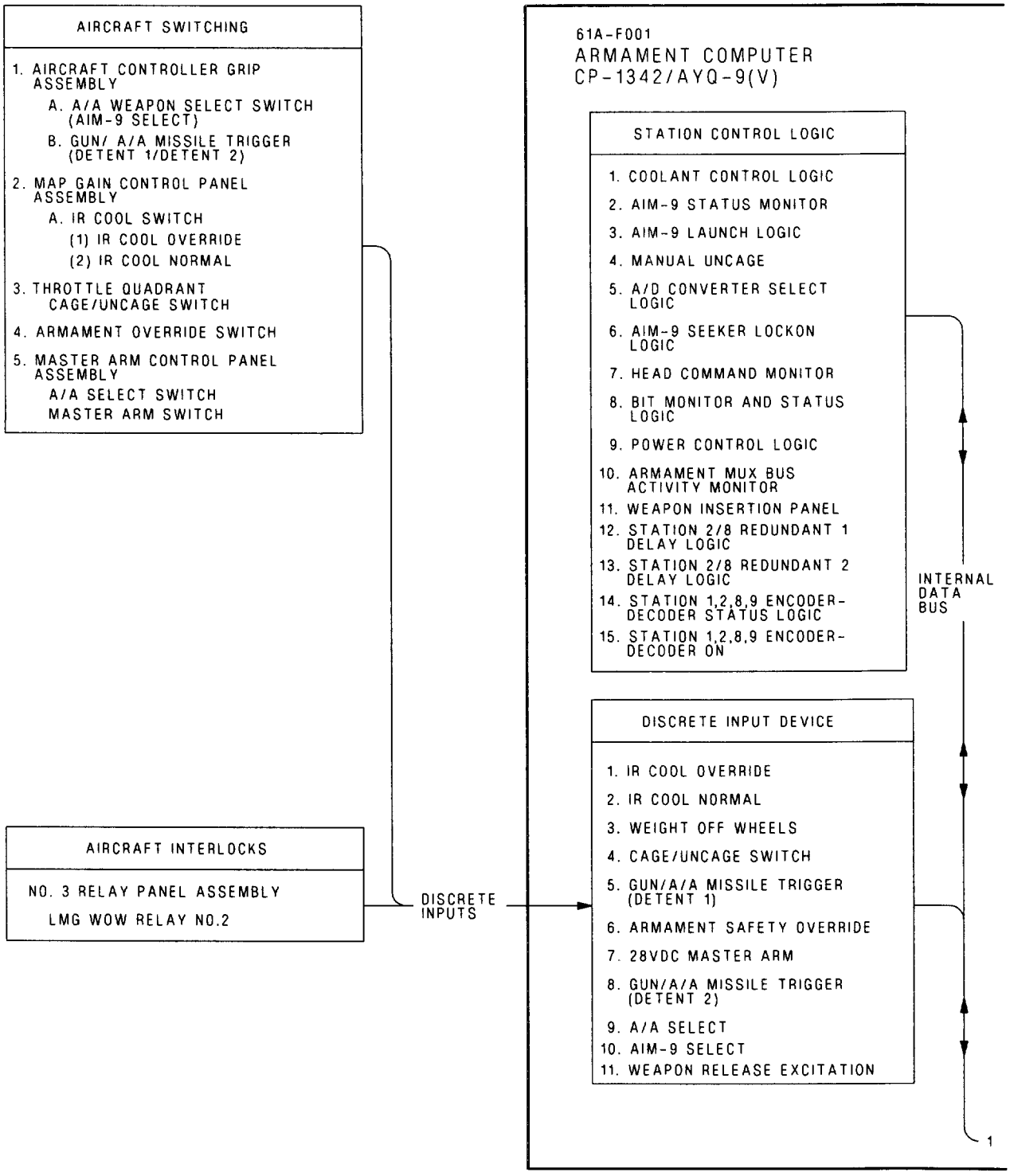
Subject	Page No.
AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic, Figure 3	12
AIM-9 Sidewinder Simplified Schematic, Figure 1	2
Guided Missile Launcher LAU-127( ) Simplified Schematic, Figure 4	16
Guided Missile Launcher LAU-7 Simplified Schematic, Figure 2	10
Introduction	1

Record of Technical Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

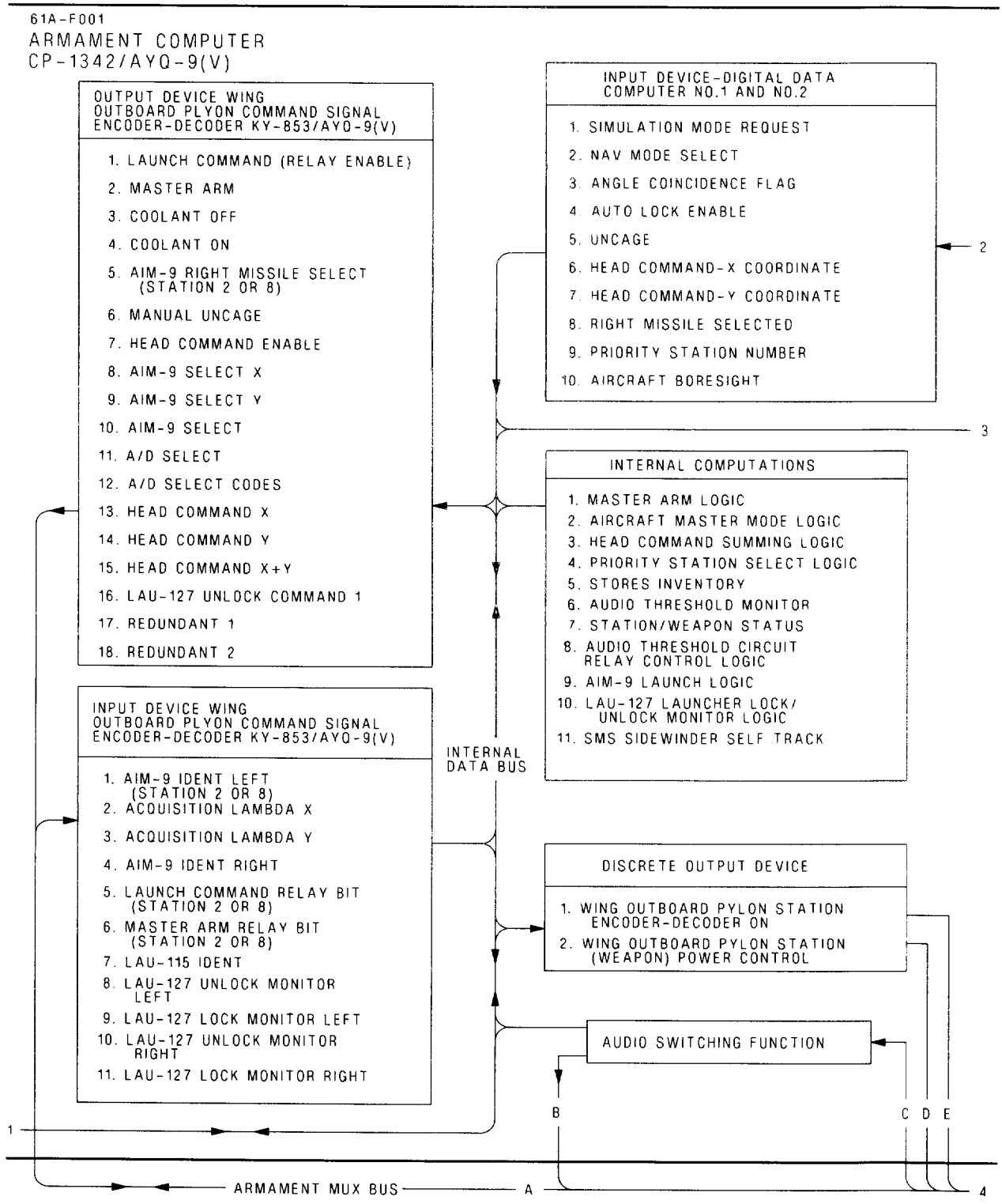
1. INTRODUCTION.

2. The schematics in this Work Package (WP) support the data in WP046 00.



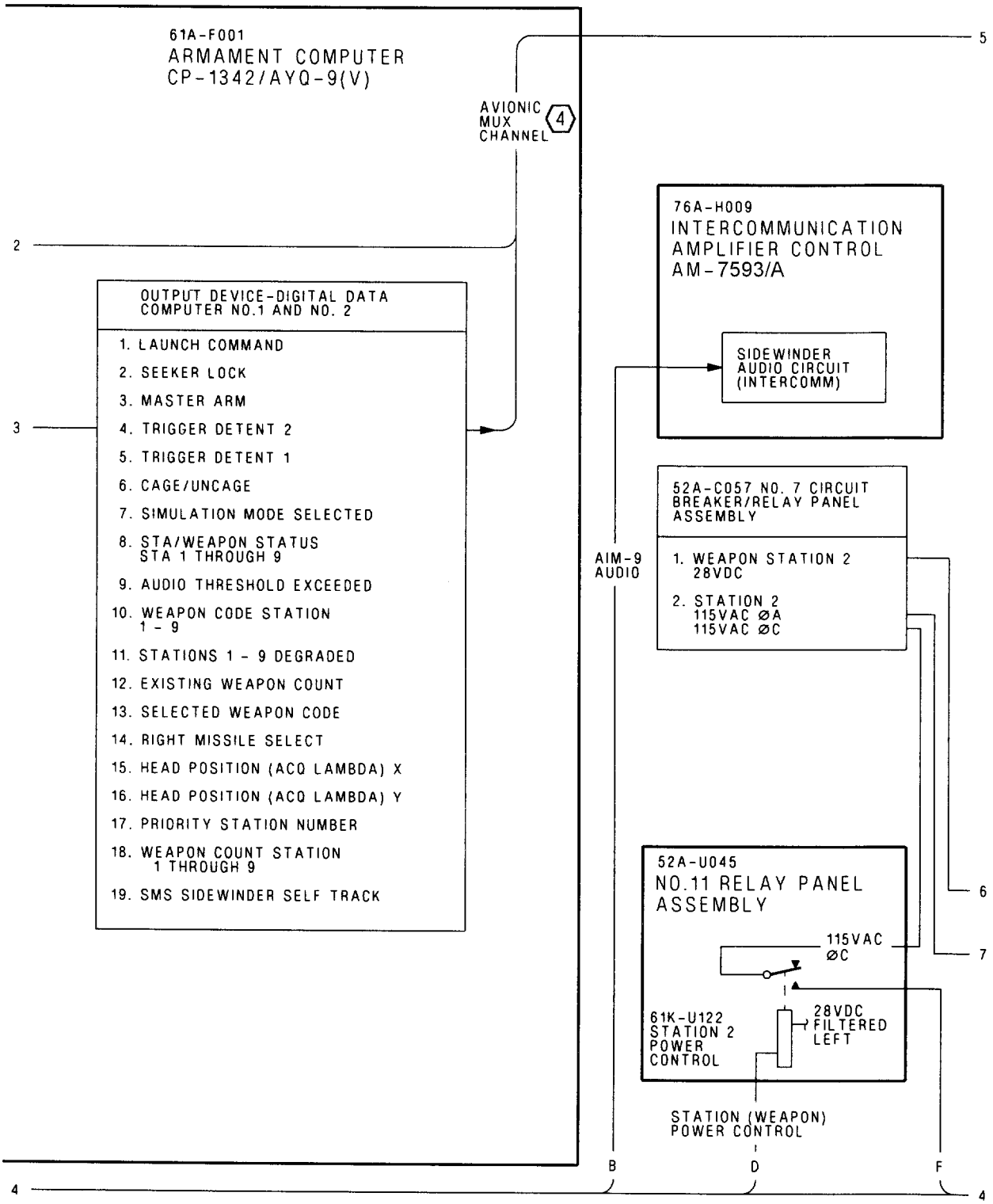
47030101

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 1)



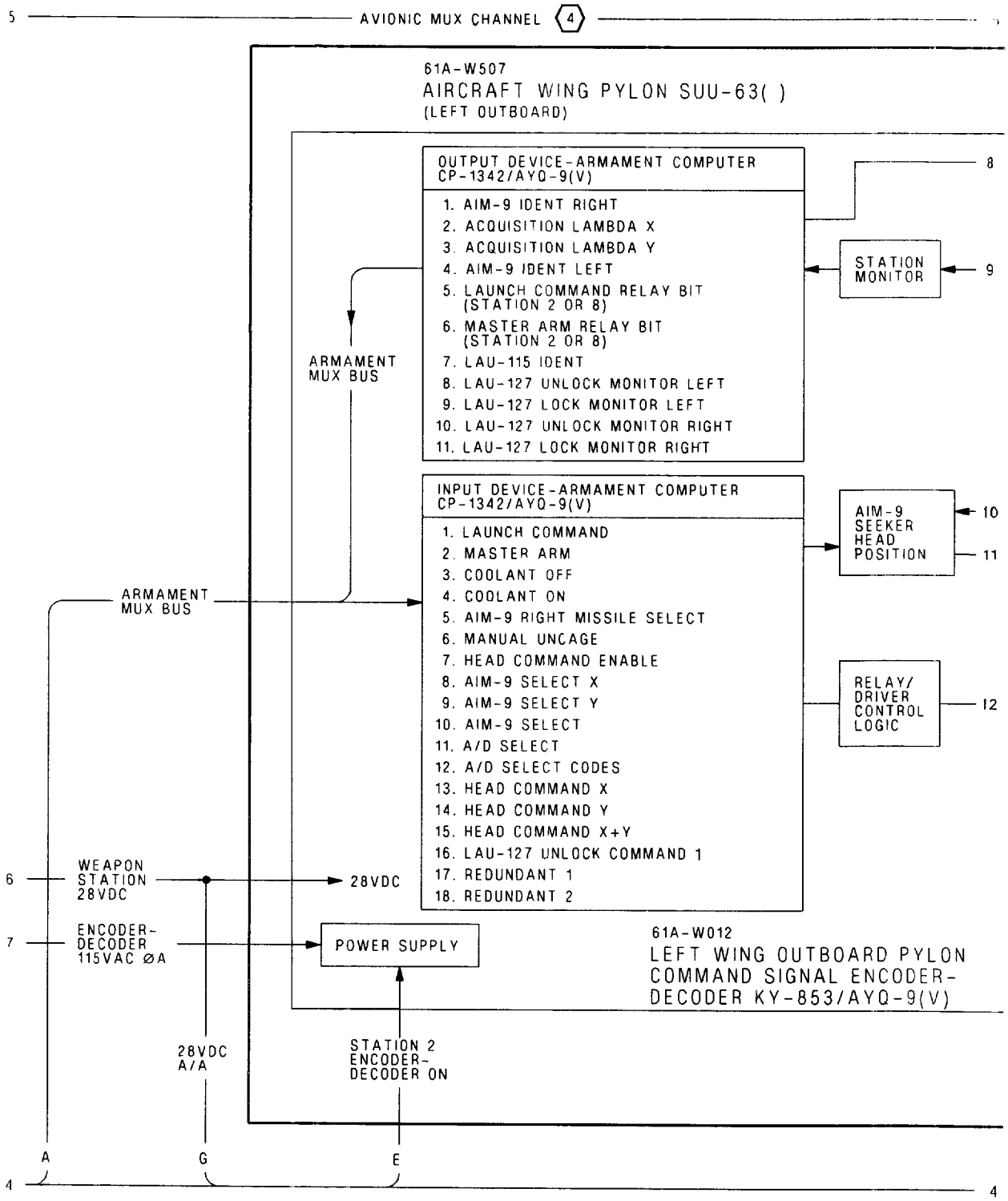
47030102

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 2)



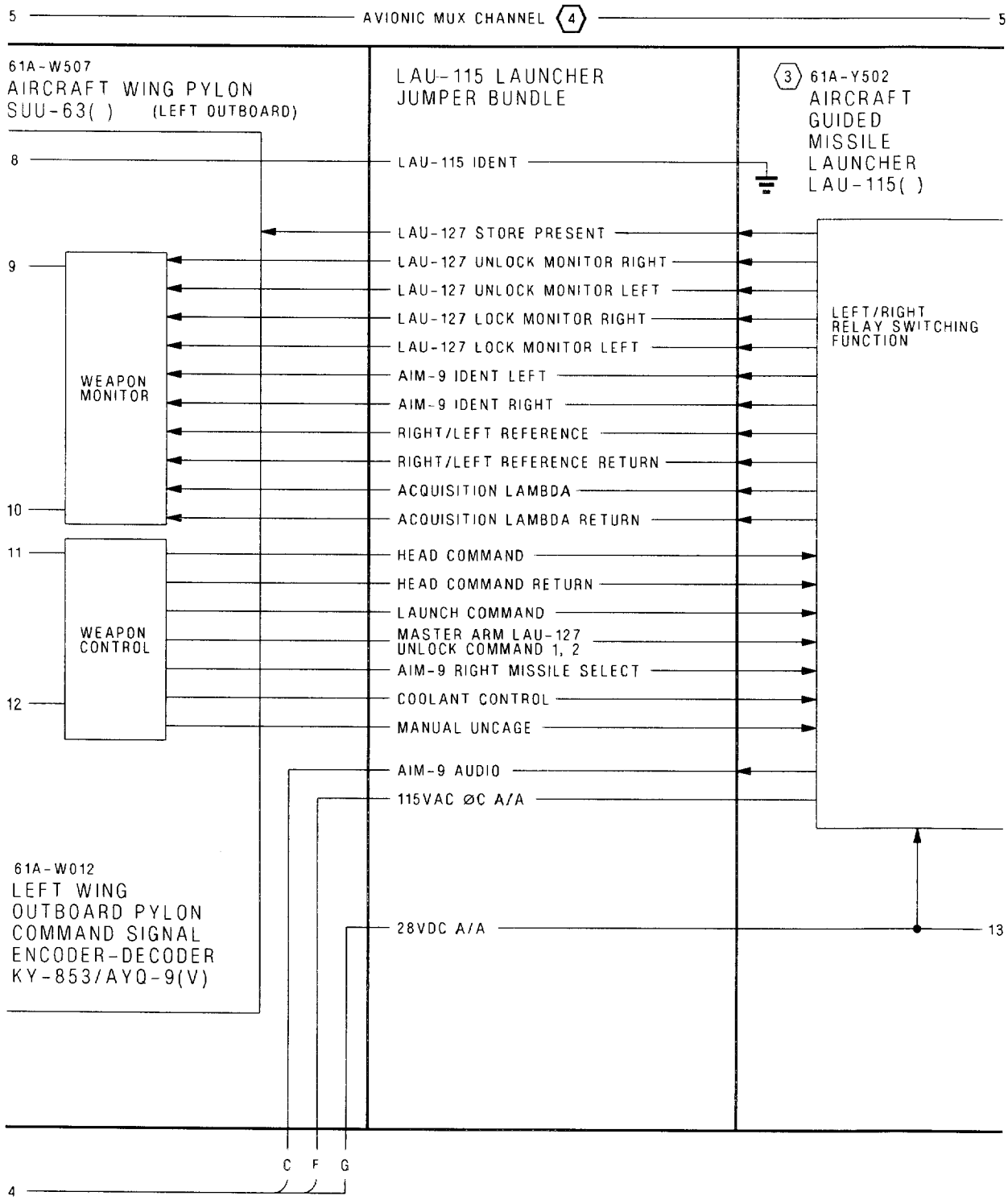
47030103

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 3)



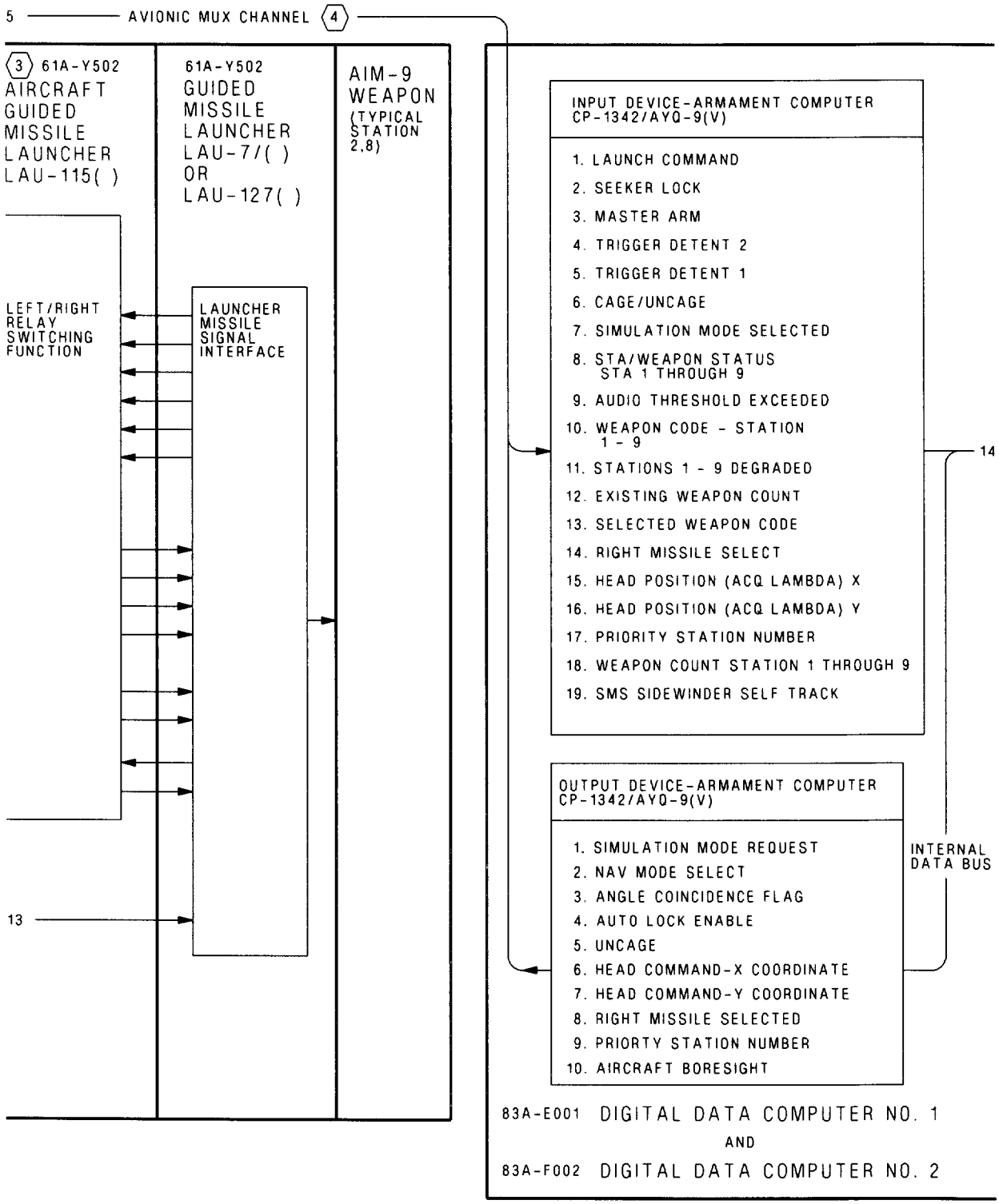
47030104

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 4)



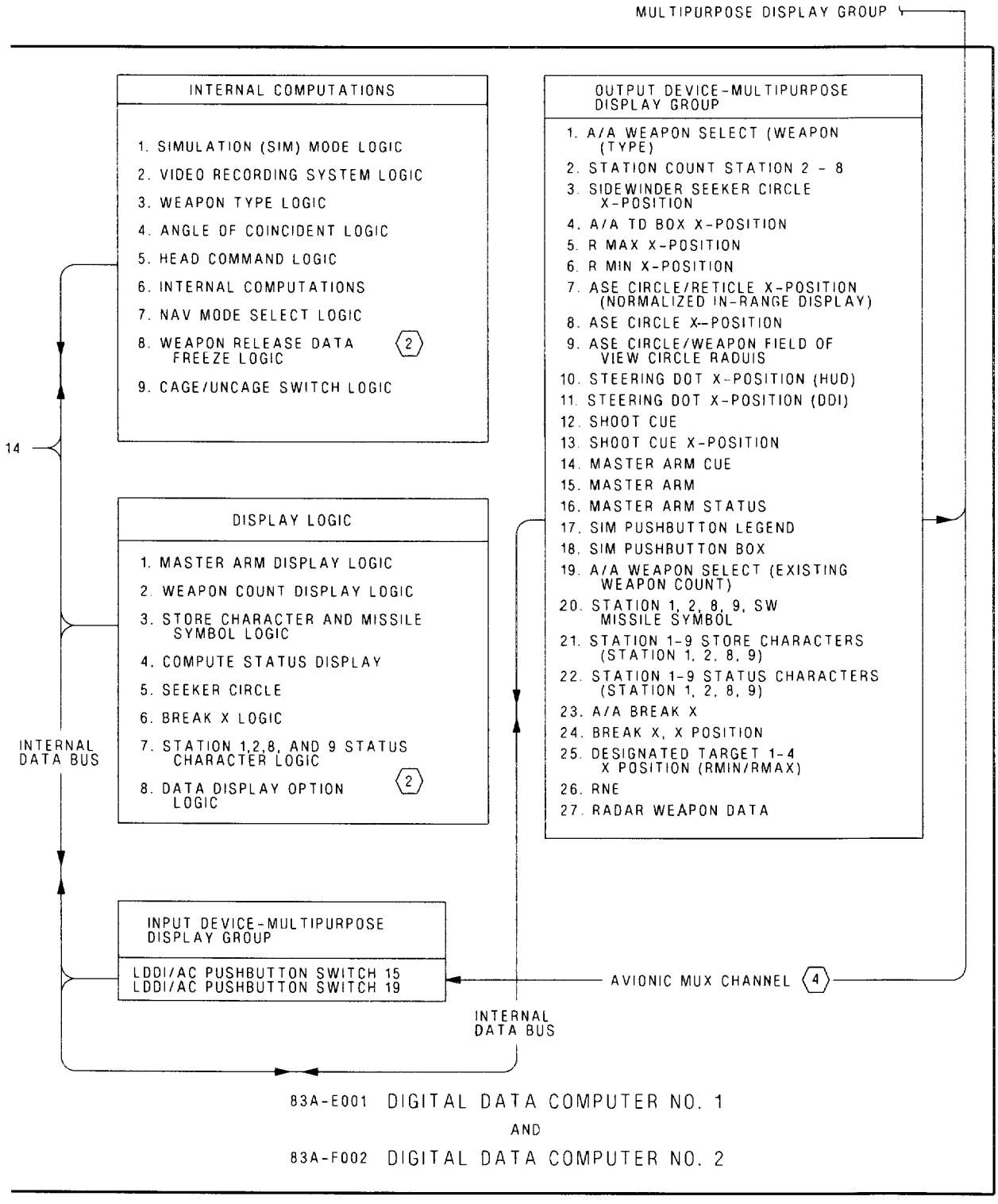
47030105

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 5)



47030106

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 6)



47030107

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 7)

LEGEND

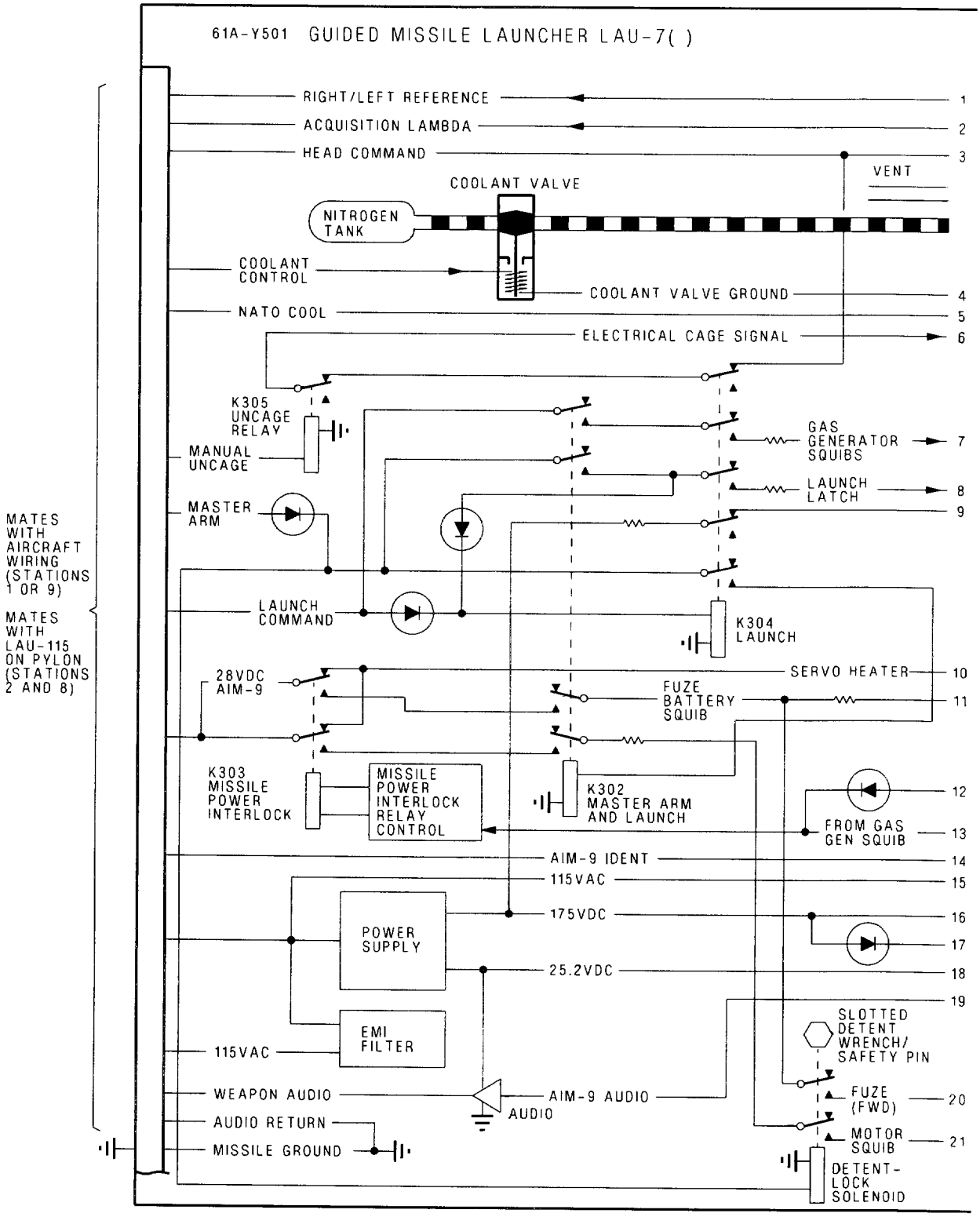
1. NONSTANDARD ABBREVIATIONS AND SYMBOLS, SEE WP002 01

⟨2⟩ SEE DATA FREEZE DISPLAY SIMPLIFIED SCHEMATIC, A1-F18AC-740-110, WP061 02.

⟨3⟩ LAU-115 PROVIDES RELAY SWITCHING AND INSTALLATION FOR TWO AIM-9 LAUNCHERS.

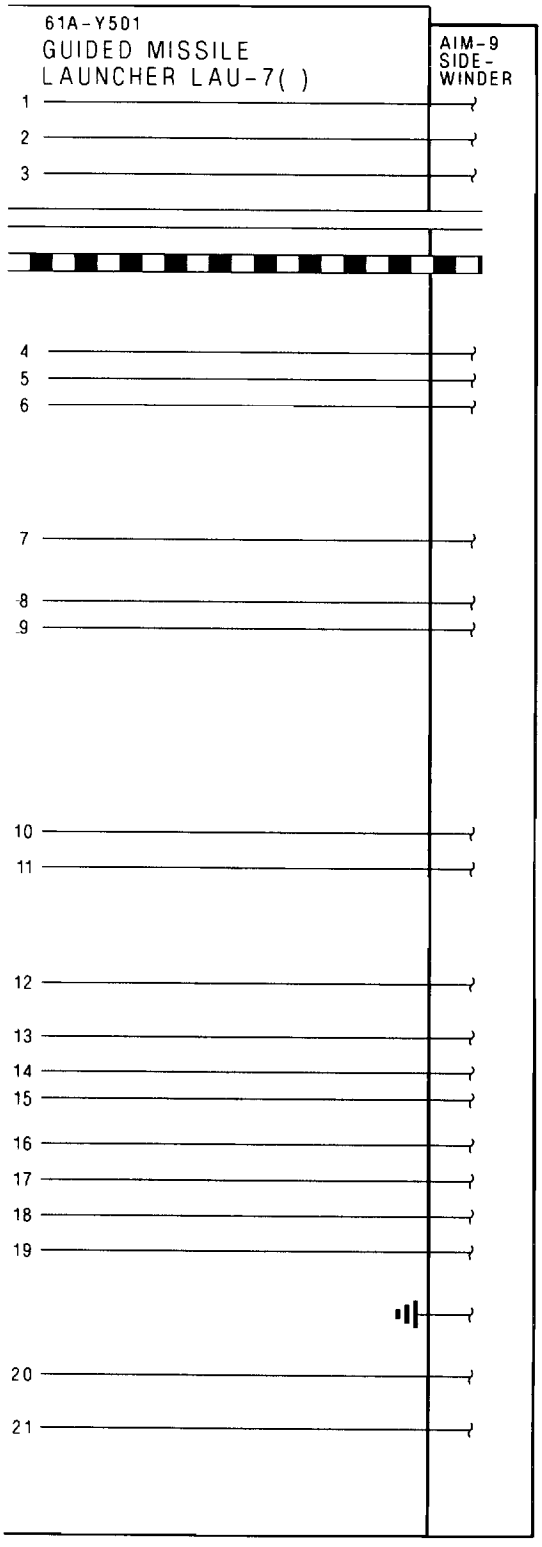
⟨4⟩ SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 1. AIM-9 Sidewinder Simplified Schematic (Sheet 8)



47030201

Figure 2. Guided Missile Launcher LAU-7 Simplified Schematic (Sheet 1)

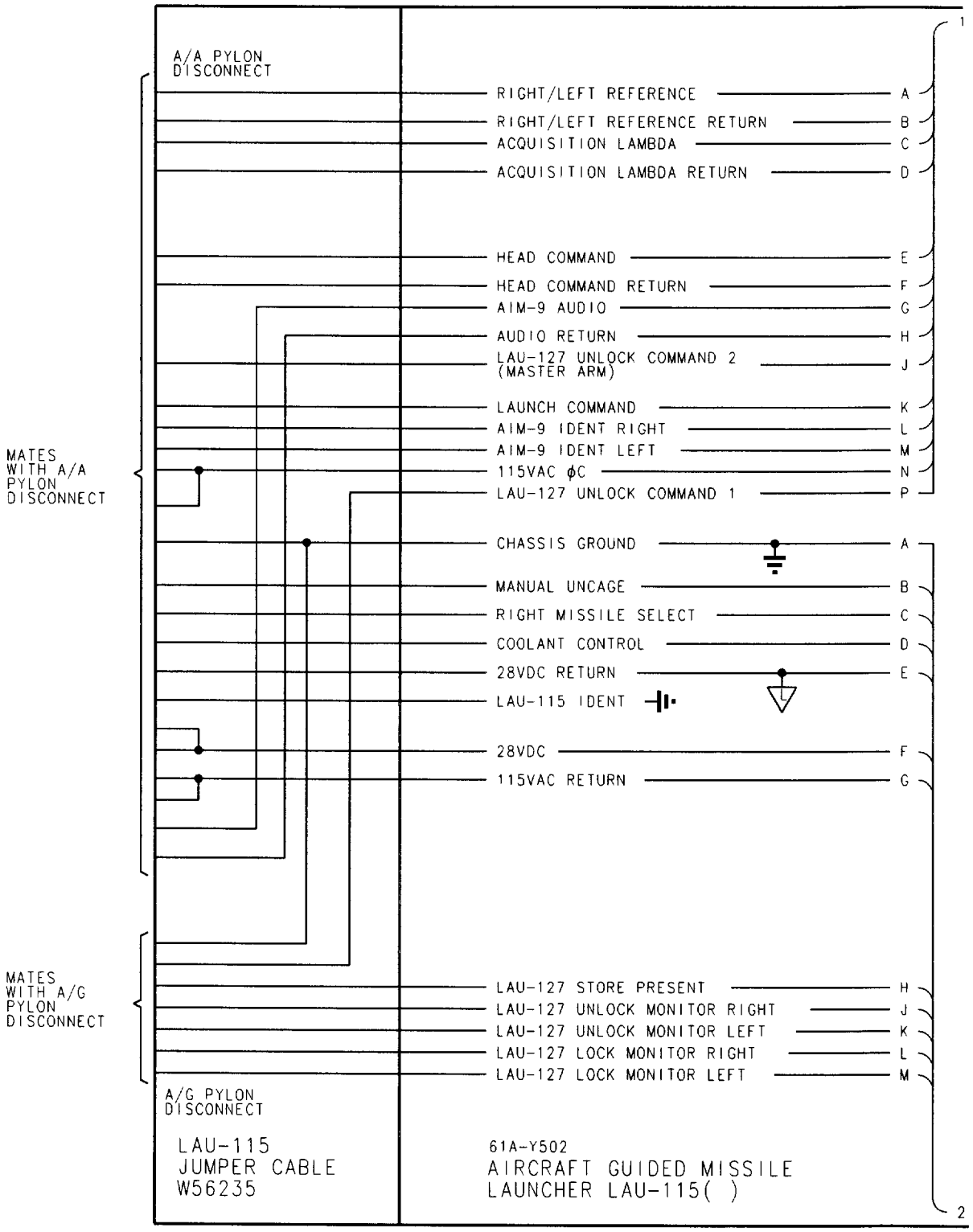


LEGEND

1. NONSTANDARD ABBREVIATIONS AND SYMBOLS, SEE WP002 01.

47030202

Figure 2. Guided Missile Launcher LAU-7 Simplified Schematic (Sheet 2)



47030301

Figure 3. AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic (Sheet 1)

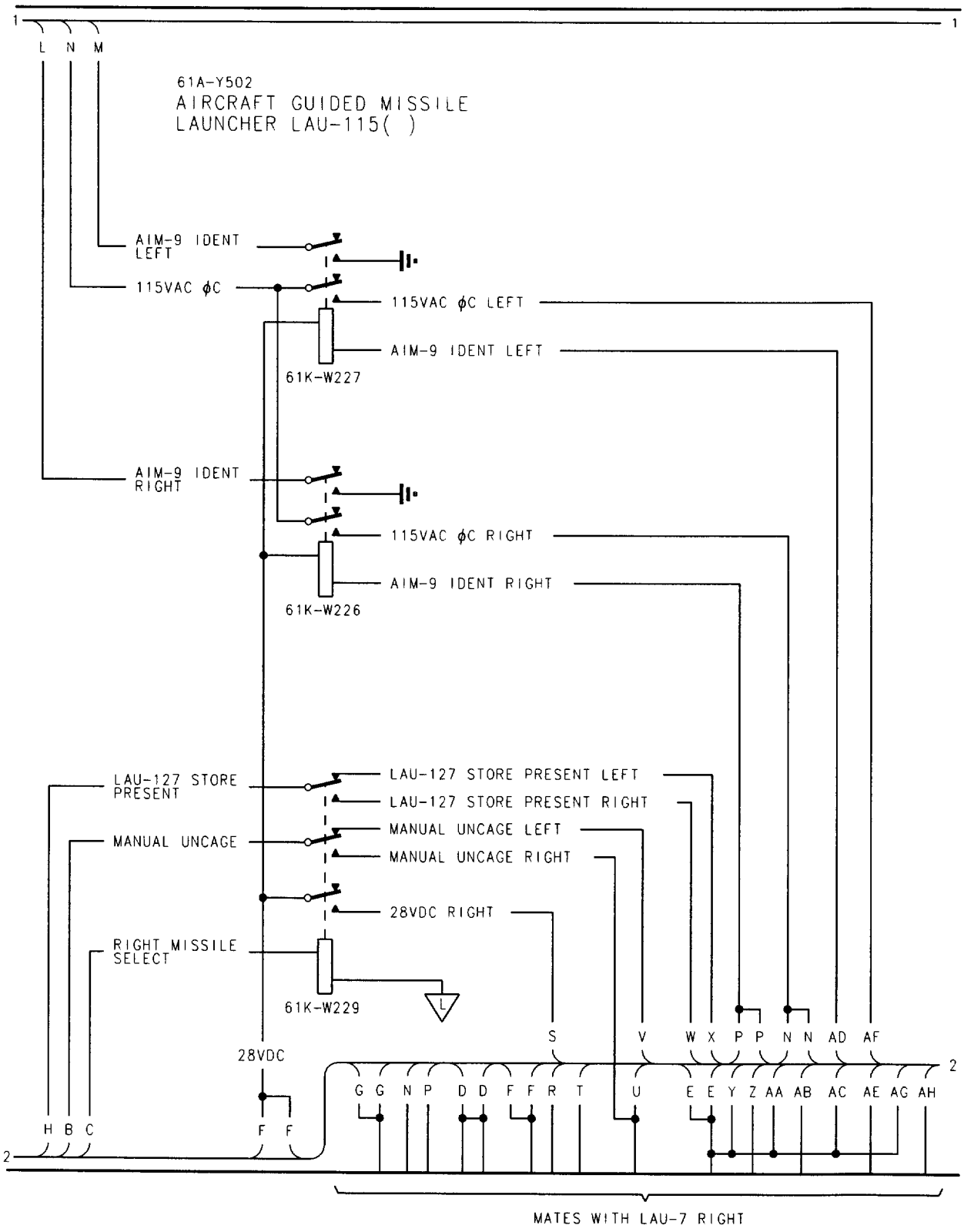
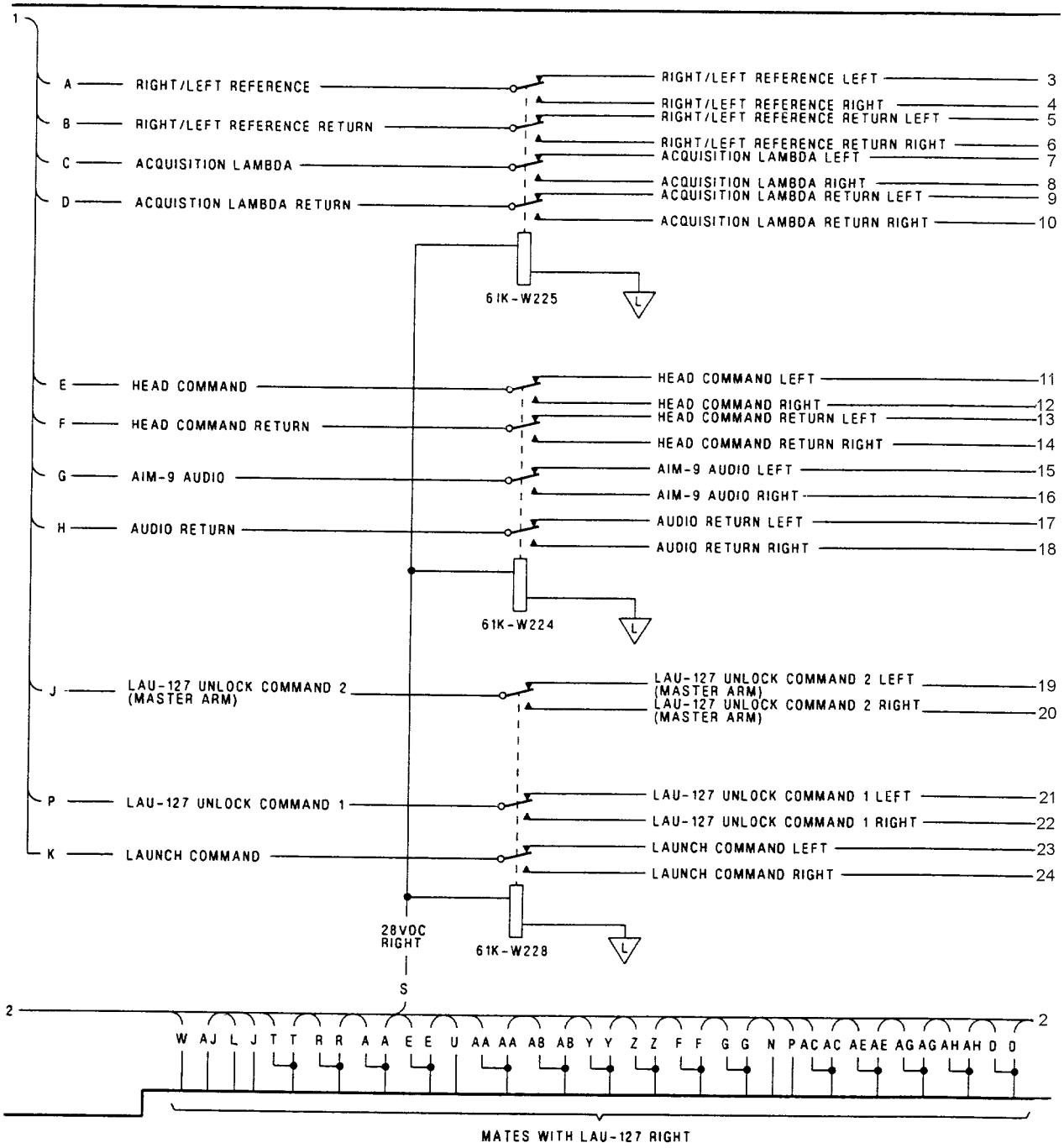


Figure 3. AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic (Sheet 2)



47030303

Figure 3. AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic (Sheet 3)

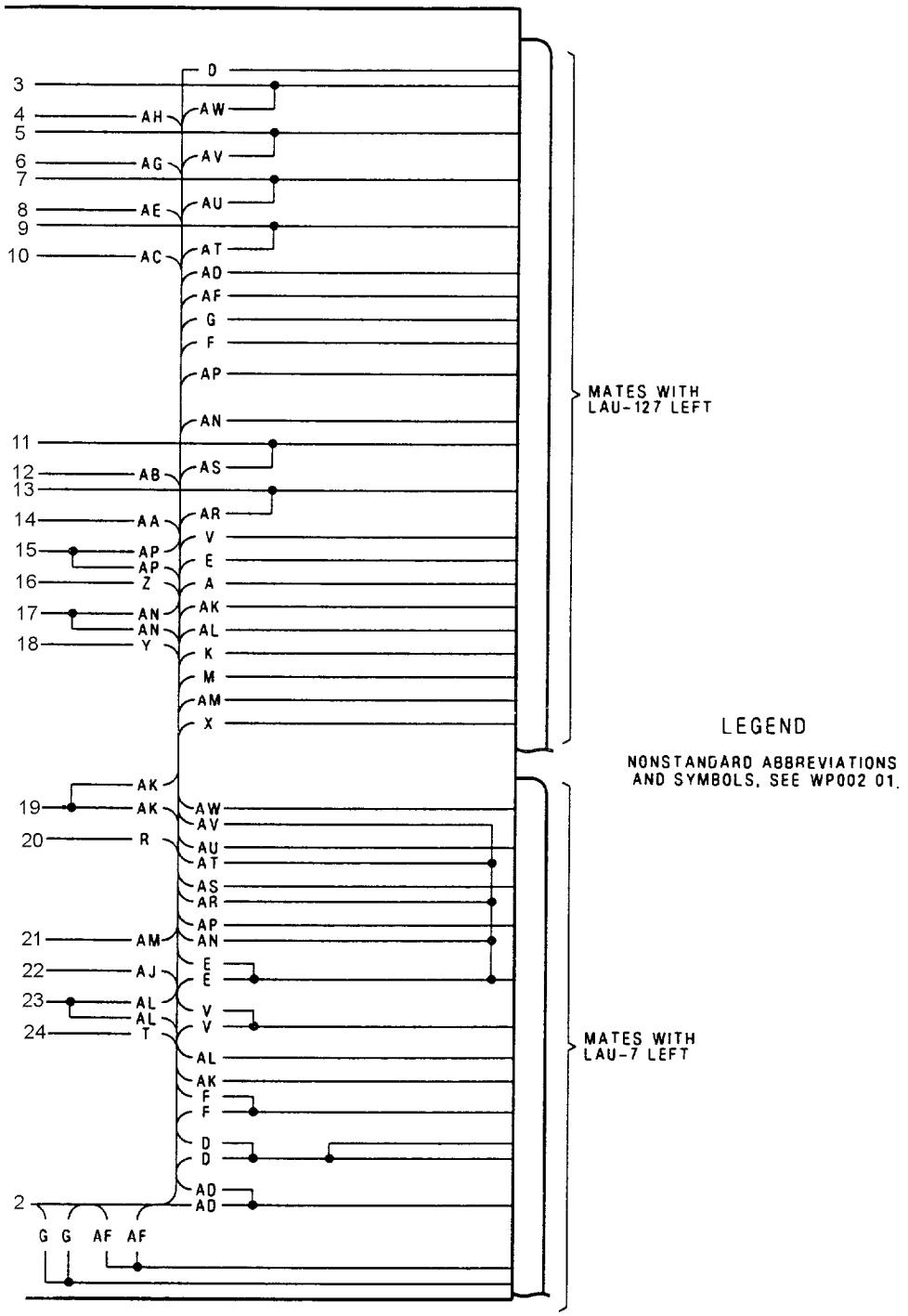
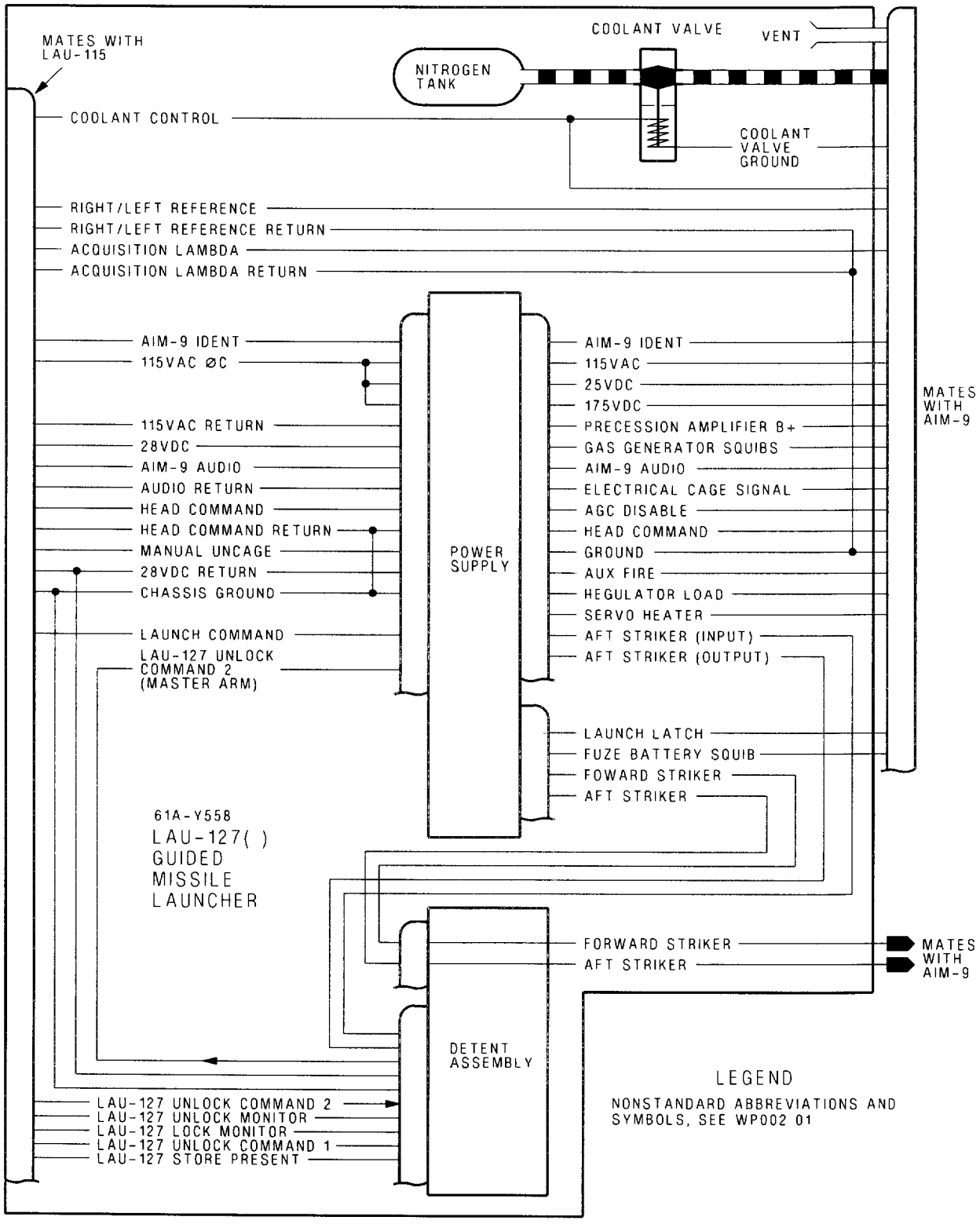


Figure 3. AIM-9 LAU-115 Launcher Relay Switching Simplified Schematic (Sheet 4)



04703004

Figure 4. Guided Missile Launcher LAU-127( ) Simplified Schematic

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATIC - WEAPON AUDIO SWITCHING SIMPLIFIED

STORES MANAGEMENT SYSTEM

EFFECTIVITY: 161353 THRU 163175 AFTER F/A-18 AFC 253 OR AFC 292

Reference Material

None

Alphabetical Index

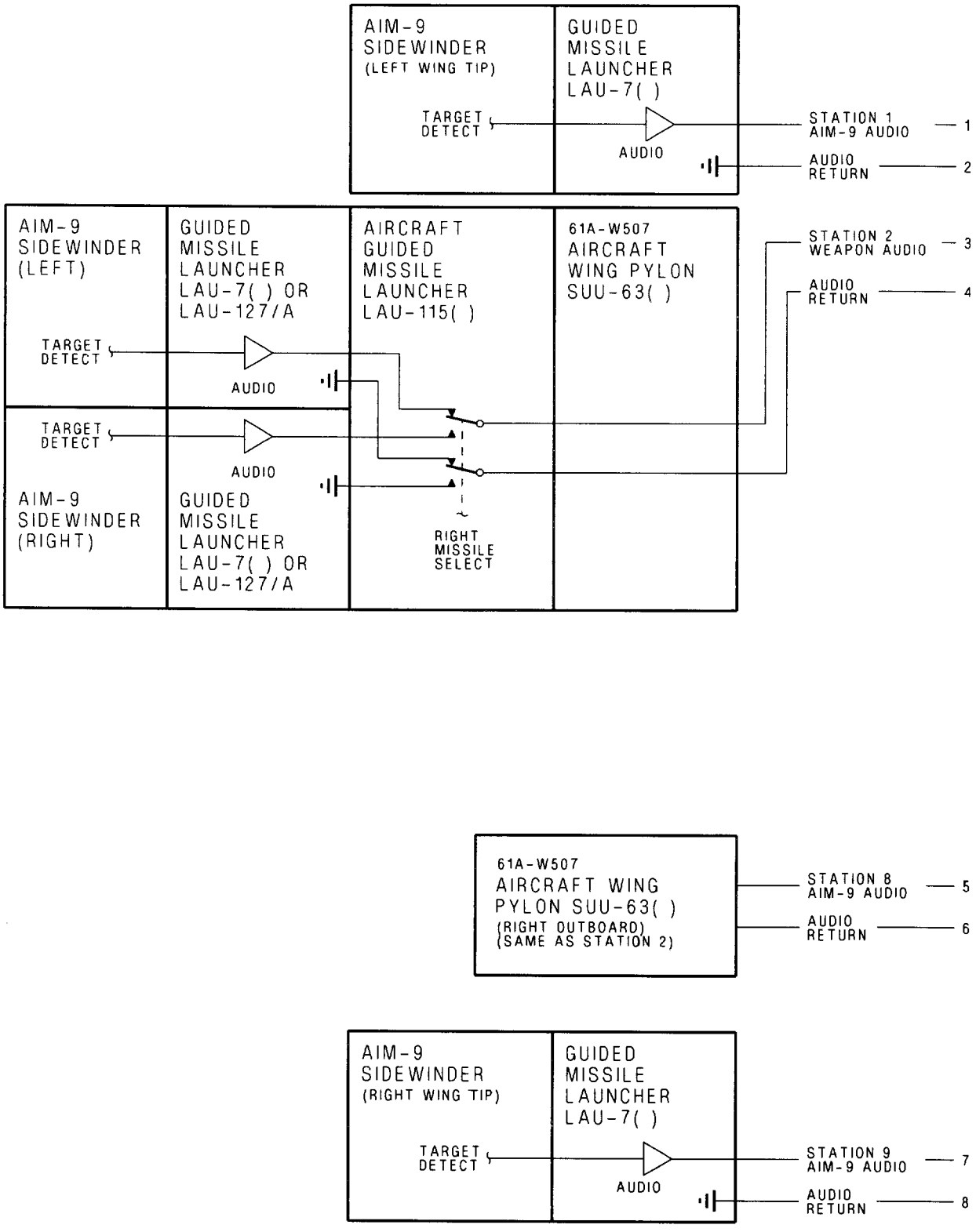
Subject	Page No.
Introduction	1
Weapon Audio Switching Simplified Schematic, Figure 1	2

Record of Technical Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

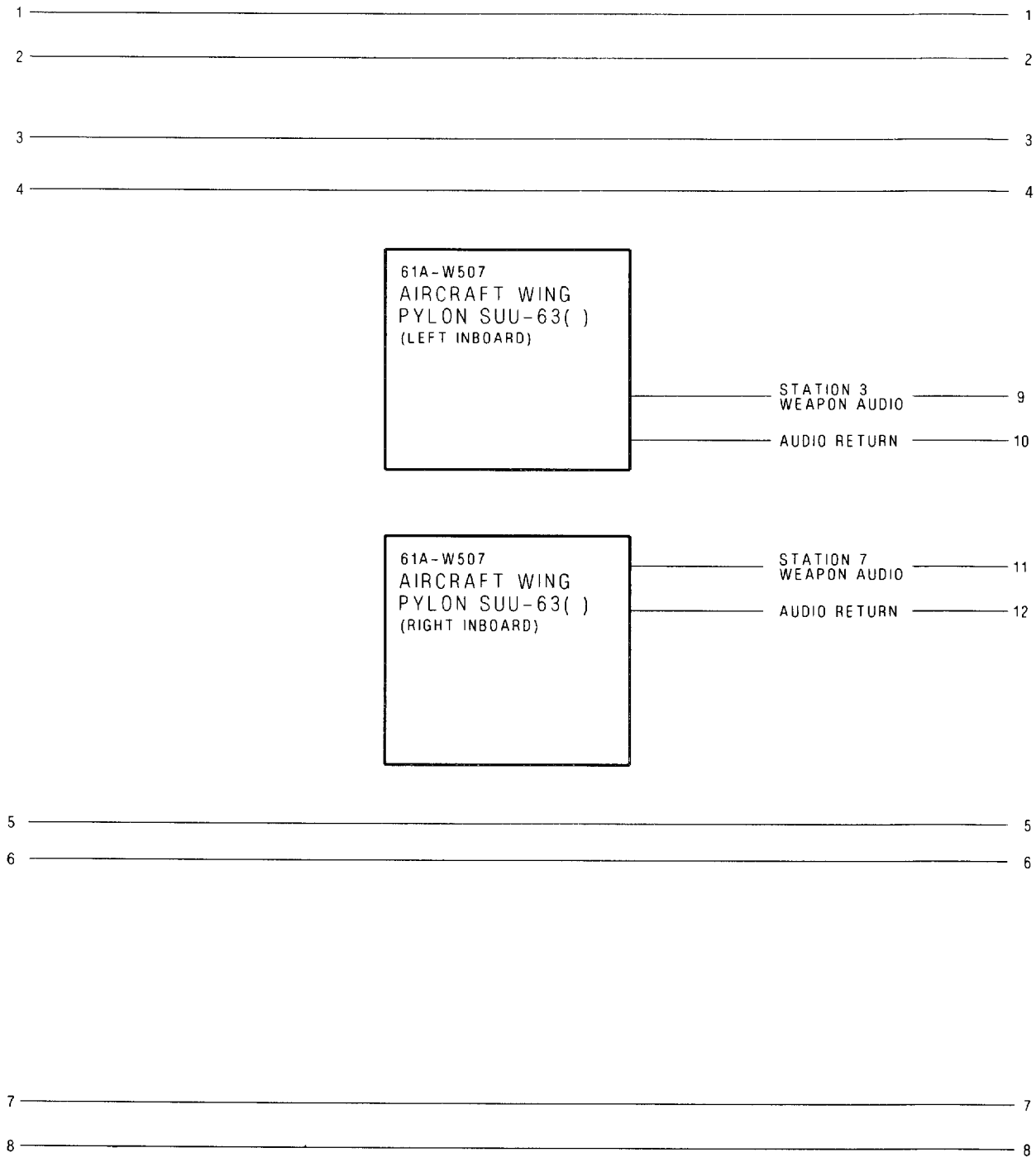
1. INTRODUCTION.

2. The schematic in this Work Package provides support for the data in WP046 00 and WP047 01.



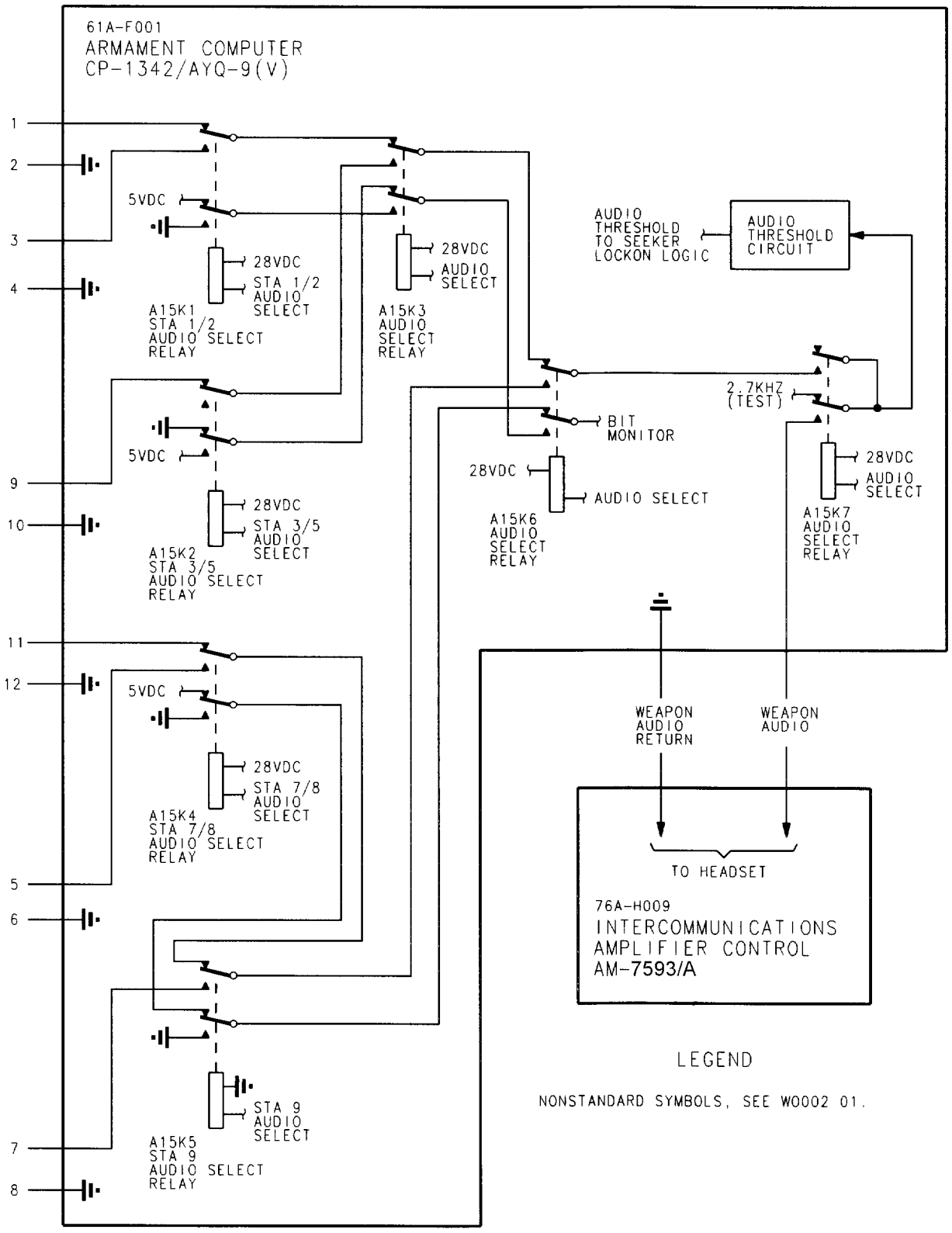
47040101

Figure 1. Weapon Audio Switching Simplified Schematic (Sheet 1)



47040102

Figure 1. Weapon Audio Switching Simplified Schematic (Sheet 2)



47040103

Figure 1. Weapon Audio Switching Simplified Schematic (Sheet 3)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

OPERATION - AIM-7 SPARROW

STORES MANAGEMENT SYSTEM0

Reference Material

Stores Management System Locator WP014 00
Stores Management System AIM-7 Simplified Schematics WP049 00
Weapon Control Systems A1-F18AC-740-500
Weapon Station 2, 3, 7, 8 AIM-7 Sparrow Schematic WP043 00
Weapon Station 4, 6 AIM-7 Sparrow Schematic WP044 00
AIM-7 Sparrow Avionic Interface Schematic WP045 00

Alphabetical Index

Subject	Page No.
AIM-7 Built-In Test	14
AIM-7 Built-In Test, Table 1	16
AIM-7 End to End Test	15
AIM-7 Initialization	7
AIM-7 Sparrow Weapon Status	8
Landing Gear Interlocks	9
Lock/Unlock Status	9
Priority Release Sequence	8
SP Test	8
Stores Inventory	7
AIM-7 Sparrow Displays, Figure 1	17
AIM-7 Sparrow Missile	3
AIM-7 Sparrow Missile Operation	2
Displays	11
Data Freeze Display	12
Radar and HUD Displays	12
Shoot Cue and Lock/Shoot Light	14
Stores Display	11
Introduction	2
Jettison	15
Fuselage AIM-7 Jettison	15
Pylon AIM-7 Jettison	15
Launch	9

Alphabetical Index (Continued)

Subject	Page No.
AIM-7 Launch Initiate A and B	10
AIM-7 Launch Initiate 2	10
AIM-7 Missile Firing	10
Launcher/Missile Interface	3
Missile Interface	3
Missile Signal Functions	3
Prelaunch Data Processing	9
Simulation Mode	15
Sparrow Select	9
Aircraft Master Mode Select	9
Armament Computer Select	9
Mission Computer System Select	9

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. Stores Management System (SMS) AIM-7 Sparrow operation is provided in this work package (WP). Additional operation WPs are listed in WP001 00.

3. Refer to WP049 00 for the simplified AIM-7 missile operation schematic. The simplified schematic shows the interface between the missile, SMS and avionic systems required for AIM-7 operation.

4. The simplified schematic shows interface with a typical command signal encoder-decoder. Weapon station 2, 3, 7, 8 AIM-7 Sparrow Schematic (A1-F18AC-740-500, WP043 00) shows detail pylon weapon station AIM-7 operation which is typical for weapon station 8. Weapon station 4, 6 AIM-7 Sparrow Schematic (A1-F18AC-740-500, WP044 00) shows detail fuselage weapon station AIM-7 operation which is typical for weapon station 6. AIM-7 Sparrow Avionic Interface Schematic (A1-F18AC-740-500, WP045 00) shows detail operation of the armament computer CP-1342/AYQ-9(V), Mission Computer (MC) system, aircraft switch logic and related avionic systems.

5. Figure 1 shows displays related to AIM-7 missile operation.

6. Refer to WP014 00 for component locations.

7. AIM-7 SPARROW MISSILE OPERATION.

8. AIM-7 sparrow operation in this work package is listed below:

a. AIM-7 sparrow missile

b. launcher/missile interface

c. AIM-7 initialization

d. sparrow select

e. prelaunch data processing

f. launch

g. displays

h. AIM-7 built-in test

i. AIM-7 end to end test

j. simulation mode

k. jettison

9. **AIM-7 SPARROW MISSILE.** The AIM-7 is a medium range missile that can also be used against targets that are at close range. On 161353 THRU 163175 BEFORE F/A-18 AFC 292 the missile uses Radar Set AN/APG-65 to illuminate the target for missile lockon and tracking. On 161353 THRU 163175 AFTER F/A-18 AFC 292 the missile uses Radar Set AN/APG-73 to illuminate the target for missile lockon and tracking.

10. WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) the left and right fuselage/ left and right outboard wing pylon weapon stations 2 and 8 can each carry one AIM-7F.

11. WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) the left and right fuselage (station 4 and 6)/ left and right outboard pylon (station 2 and 8) can each carry one AIM-7F, AIM-7M or AIM-7M H-Build Sparrow missile. The AIM-7M H-Build missile are sometime referred to as AIM-7H.

12. ON 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74, AIM-7M can be loaded as well as AIM-7F.

13. ON 161353 THRU 161987 BEFORE F/A-18 AFC 74, WITH PYLON COMMAND SIGNAL ENCODER-DECODER KY-853/AYQ-9(V) PART NUMBER 7959350-007R1 (F18 IAVC 2814) AND FUSELAGE COMMAND SIGNAL ENCODER-DECODER KY-854/ AYQ-9(V) PART NUMBER 7959450-007R1 (F18 IAVC 2813); armament computer, MC system and display logic will be for AIM-7F missiles when AIM-7M are loaded on AIM-7 weapon stations.

14. On aircraft AFTER AFC 253 OR 292, the left and right fuselage (stations 4 and 6) left and right inboard and outboard wing pylon (stations 2, 3, 7 and 8) can each carry one AIM-7. Each station can carry AIM-7F, AIM-7M or, AIM-7M H-Build Sparrow missiles. The AIM-7M H-Build missiles are sometimes referred to as AIM-7H.

15. **LAUNCHER/MISSILE INTERFACE.** Aircraft Guided Missile Launchers LAU-115A and LAU-116A interface the missile and power control/weapon station encoder-decoder control functions. Pylon AIM-7 are loaded on LAU-115 and fuselage AIM-7 on LAU-116.

16. The launchers have lock and unlock circuits that lock the launchers during ground operation and unlock the launcher as a function of A/A aircraft master mode and jettison select functions.

17. **Missile Interface.** Each launcher has a motor fire and an umbilical connector that mates with the missile. These connectors separate from the missile when the missile is released from the launcher.

18. LAU-115 Interface. Pylon AIM-7 launcher LAU-115 is installed on BRU-32. A jumper bundle connects to the LAU-115 and AIR-AIR disconnect connector on pylon weapon disconnect/stowage panel. This jumper provides the electrical interface for power control and encoder-decoder signals. Work package 049 00 has a simplified schematic of the LAU-115.

19. On LAU-115 the command signals from the Encoder-Decoder 853/AYQ-9(V) is routed through the LAU-115 jumper cable 56235, launch connector and the LAU-115 relay panel deenergizes relay contact then to the launcher umbilical connector that mates with the missile.

20. LAU-116 Interface. Fuselage AIM-7 launcher LAU-116 bolts to the aircraft structure. Launcher connectors mate with fuselage disconnect connectors for the electrical interface for power control and encoder-decoder signals. Work package 049 00 has a simplified schematic of LAU-116.

21. **Missile Signal Functions.** Except for eject commands 1 and 2 on the fuselage station and LAU-115 solenoid lock/unlock monitor on pylon stations 2 and 8, 3 and 7 on aircraft AFTER AFC 253 OR 292, the missile/launcher signals are the same. Missile and launcher signals are listed below:

a. missile/launcher power distribution

b. missile/launcher monitor signals

c. missile/launcher control signals

d. missile launch signals

22. Missile/Launcher Power Distribution. Each weapon station requires 28vdc and 115vac, 400 Hz, 3ϕ to operate. The launcher uses 28vdc to operate the lock/unlock circuit and 3ϕ power is used by the missile.

23. When power is applied to the aircraft, 28vdc is sent to the launcher(s) as the power source for the latching relay and linear actuator. The latching relay and linear actuator control the lock/unlock function for the launcher.

24. The SMS monitors the radar on signal from the SNSR pod control box panel assembly. If the radar is on, the armament computer sends an enable signal to energize the weapon station power control relays for stations with an AIM-7 ident. When energized, the relay sends the 115vac 400 Hz 3ϕ power to the missile. The relay remains energized while the radar is on and the AIM-7 ident exists until one of the conditions below exists:

a. Weapon station status is fail or hung

b. SP TEST (retune) function is initiated and power is removed for 7 seconds then reapplied.

c. 1.3 seconds after battery arm is received from the missile during launch sequence.

25. Missile/Launcher Monitor Signals. The launcher provides signals required by the SMS to monitor missile and launcher status. Monitor signals are listed below:

a. Lock and Unlock Monitor - The lock and unlock monitor signals are sent to the encoder-decoders to indicate the launcher status. The SMS uses lock/unlock to determine release and rack/launcher lock/unlock logic for the weapon stations. The lock/unlock status is also sent to the mission computer (MC) system for station status and displays. The SMS updates the launcher lock/unlock status at the times listed:

(1) power up

(2) gear up

(3) periodic BIT

(4) after trigger and prior to fire signal

(5) gear down

b. Station status is displayed on the stores display on the left digital display indicator (DDI). LKD (locked) is displayed for a station with an AIM-7 ident when the launcher is locked and all gear up and locked is set true. ULK (unlocked) is displayed for stations with an AIM-7 ident when the lock/unlock mechanism of either the launcher or the BRU-32 has not locked and all gear up and locked is false (gear down).

c. Battery Armed - This signal is sent to the SMS to enable missile launch functions. The signal represents the missile power supply on status. The missile power supply is turned on as a function of battery and hydraulic activate.

d. Recycle - Recycle is the signal sent to the SMS to indicate that the missile has tuned to the radar frequency. The SMS uses the signal for priority select, station status logic, and sparrow tune launch enable.

(1) AIM-7M/H recycle is tested during initial tune and at BIT. If recycle is set true, indicating tuned, recycle status is latched in the armament computer and the missile will always indicate ready. If power to the missile fails and launch is attempted, the missile will fail internal missile prelaunch BIT and missile status is set to HUNG. The missile is removed from launch sequence and cannot be reselected.

(2) AIM-7F recycle is tested at each of the below times:

(a) after transition from gear down to gear up

(b) after an inflight power transient

(c) after a master mode change

(d) just before applying battery and hydraulic activate during a launch sequence

(3) If recycle is not true at each of these times the missile is removed from launch sequence. “X” is displayed through Sparrow store character on the stores display and

missile count on the HUD and radar display is decremented by one. Pressing SP TEST option on the stores display allows attempted retune of the failed AIM-7. A missile that retunes is restored to the launch sequence.

e. When the missile fails to tune an X is displayed through Sparrow store character for stations with AIM-7 idents. The display is on the stores display on the DDI.

f. AIM-7 Ident - The AIM-7 ident is a discrete ground signal sent to the weapon station encoder-decoder. The ident signal is made available on the armament mux bus for use in the armament computer. The armament computer uses the ident for weapon initialization, inventory and select functions.

g. The launcher also uses the ident for the ground circuit to the lock/unlock circuits. This interlock function stops the linear actuator from operating when a missile is not loaded. The ident also is the ground enable for the holding solenoid on the LAU-115 for pylon stations test.

h. Missile Designator - 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74 - Missile designator is part of the inflight switch/missile designator signal line. During power up BIT, the encoder-decoder monitors the missile static voltage of the inflight switch signal. When the voltage level is 15vdc, a comparator in the encoder-decoder sends an AIM-7M missile designator to the armament computer.

i. Solenoid Unlock Monitor - The solenoid unlock monitor signal is a ground discrete from the LAU-115 to the weapon station encoder-decoder. The monitor exists when the launcher holding solenoid is energized. The monitor signal is sent to the armament computer on the armament mux bus for motor fire enable logic.

26. Missile/Launcher Control Signals. During AIM-7 prelaunch and launch operation, the weapon station encoder-decoder sends discrete signals to the selected weapon station missile/launcher. Control signals are listed below:

a. Launcher Lock/Unlock Command - The encoder-decoder sends lock and unlock commands to the launcher as a function of all gear up and locked, aircraft master mode select, and selective jettison logic. The lock command is sent to the launcher when all gear up and locked is set false. Unlock is sent to the launcher when all gear up and locked is set true. A/A aircraft master mode is selected or when the SELECT JETT switch is set to any position other than SAFE. The SMS monitors this function using lock and unlock monitor discretes.

b. Head Aim - The encoder-decoder sends head aim pitch and yaw to the missile to position the missile antenna. The signals position the antenna to the radar target line of sight. Head aim pitch and yaw are the DC component of the head aim pitch/true airspeed and head aim yaw/range at launch signals.

c. English Bias - The encoder-decoder sends english bias pitch and yaw to the missile to provide preliminary missile guidance to target intercept after launch.

d. Roll Command - The encoder-decoder sends a roll command DC signal to the missile. The signal value causes the fuselage missiles to roll to a level flight attitude after launch. Roll command is zero for pylon AIM-7.

e. Sweep Select - The encoder-decoder sends a ground to the missile when the radar range track signal exists. The ground tells the missile to sweep narrow band because simulated doppler and sweep control data are available to the missile. The sweep select signal is an open circuit when radar range track does not exist.

f. Simulated Doppler - Simulated doppler is available to the missile during radar range track. This signal is proportional to the closing rate (Vc) of the target. Simulated doppler and sweep control are used to set the missile speed gate for lockon. The LAU-115 and LAU-116 have broadband transformers that are used for impedance matching. These transformers change the encoder-decoder output voltages to be compatible with the missile.

g. Sweep Control - During low or opening Vc radar track conditions, sweep control is sent to the missile for more speed gate control. Sweep control is the DC component of the dogfight/sweep control signal.

h. True Air Speed - True air speed is sent to the missile autopilot circuits. The signal is the AC component of head aim pitch/true air speed from the encoder-decoder.

i. Altitude Switching 1 and 2 - Altitude switching signals from the encoder-decoder are ground discretes

to the missile. Switching logic is computed in the MC system and sent to the SMS. This signal indicates the altitude from which the missile will be launched. The grounds to the missile set the autopilot gain circuits in the missile.

j. Inflight Switching - 161353 THRU 161987 BEFORE F/A-18 AFC 74 - Inflight switching is a ground discrete to the missile from the encoder-decoder. The signal is sent to the missile prior to launch when the missile flight path will change altitude bands. The signal is used by the missile autopilot circuits. The MC system computes this signal as a function of target and interceptor altitude and sends the signal to the SMS.

k. Inflight Switching/Missile Monitor - 162394 AND UP; ALSO 161353 THRU 161987 AFTER F/A-18 AFC 74. The encoder-decoder monitors AIM-7 sparrow missile internal inflight switching circuitry at power up BIT. When AIM-7 sparrow missile is 7F, 5 volts will be monitored and the encoder-decoder will not transmit the 7M designator signal to the armament computer. When AIM-7 sparrow missile is 7M, 15 volts will be monitored and the encoder-decoder will transmit the 7M designator signal to the armament computer. During the launch sequence, inflight switching circuitry in the encoder-decoder provides a ground discrete to the missile. The signal is sent to the missile prior to launch when the missile flight path changes altitude bands. The signal is used by the missile autopilot circuits. The MC system computes this signal as a function of target and interceptor altitude and sends the signal to the SMS.

l. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) the armament computer can not distinguish AIM-7H type missiles. Pushbutton 19 on the stores display provides an option to allow an AIM-7H missile to be identified. Selecting Pushbutton 19 with AIM-7M displayed and AIM-7H missile loaded, sends Sparrow Change Command signal from the MC system to the Armament Computer. This allows upgrading to AIM-7H types missiles.

m. Range At Launch - Range at launch is sent to the missile from the encoder-decoder. The missile uses this signal to predict the missile time of intercept. The MC system computes this signal value using radar range data and sends the signal to the SMS. This signal is the AC component of head aim yaw/range at launch.

n. Dogfight - The dogfight signal is sent to the missile by the encoder-decoder. The signal is sent to the missile to increase the time constants of the autopilot circuits for close combat launches. The signal is the AC component of dogfight/sweep control.

o. Pulse Doppler (PD) Command - The PD command is a ground discrete to the missile from the encoder-decoder. The signal exists when the radar is in a missile launch compatible mode. This signal tells the missile that the radar is illuminating the target with the signal carriers required for missile lockon and tracking.

p. Roll Gain Switching - The roll gain switching signal is sent to the missile when altitude switching 1 signal does not exist. The signal sets the missile autopilot to high gain. Roll gain switching is an AC signal, superimposed on the english bias yaw (DC) signal.

27. Missile Launch Signals. The signals sent to the missile from the weapon station encoder-decoder to enable launch are listed below:

a. Battery and Hydraulic Activate - The missile power supply and hydraulic functions are enabled when this signal is sent to the missile. The signal is applied to the missile when the trigger is pressed and before motor fire command/eject 1 and 2 are applied to the missile.

b. Eject 1 and 2 - On fuselage weapon stations 4 and 6 the AIM-7 are ejected from the LAU-116. These signals fire explosive cartridges in the launcher. The cartridges enable the launcher feet to push the missile from the launcher.

c. Motor Fire Command - Motor fire ignites the missile motor to enable missile launch. On pylon stations motor fire is enabled when battery arm from the missile and the LAU-115 solenoid unlock monitor exist. On fuselage stations motor fire is enabled when battery arm is set and the missile ident does not exist (missile separated from launcher). Motor fire is not enabled during jettison functions.

d. LAU-115 Solenoid Unlock - This signal is sent to the LAU-115 launcher before motor fire to unlock the holding solenoid. The signal energizes the holding solenoid relay and enables 28vdc to the holding solenoid. The holding solenoid ground exists when the

launcher is unlocked. If the launcher is unlocked the 28vdc from the relay energizes the holding solenoid. When the solenoid energizes, the mechanical holding mechanism is released. Switch contacts on the holding solenoid provide a monitor signal for a solenoid status signal to the SMS.

28. WITH ARMAMENT COMPUTER CP-1342/ AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000). Targeting data - When an AIM-7H is selected, eight additional targeting words will be used. The AIM-7H will accept eight additional targeting data words by timesharing the following four existing signals; English Bias Yaw (EBY), English Bias Pitch (EBP), True Air Speed (TAS), and Range At Launch (RAL). The eight new data words are Range To Target, Trajectory Shaping Time, Sparrow ECM Data, Special Launch Modes, Dive Angle At Launch, Roll Angle At Launch, Aircraft ID #1, and Aircraft ID #2.

29. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) Dive Angle at Launch, Aircraft ID #1, Range To Target and Sparrow ECM Data together comprise message 1 to the AIM-7H Sparrow. Message 1 is sent to the missile 75-280 milliseconds after Battery Active.

30. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) message 2 is comprised of Roll Angle at Launch, Aircraft ID #2, Trajectory Shaping Time, and Special Launch Modes. Message 2 is sent to the missile 280-600 milliseconds after Battery Active. Within 700 milliseconds after application of Battery Active, the SMS returns EBY, TAS, RAL, and EBP to their true values.

31. **AIM-7 IN INITIALIZATION.** The armament computer does a complete power on BIT of the SMS components at power turn on. Weapon initialization is done during this BIT. Initialization tests the ability of the SMS to launch the AIM-7. Data related to initialization is sent to the MC system at the end of power on BIT by way of the avionic mux bus.

32. The initialization process is made up of the functions listed below:

a. stores inventory

b. AIM-7 sparrow weapon status

c. SP Test

d. priority release sequence

e. landing gear interlocks

f. lock/unlock status

33. **Stores Inventory.** Stores load and the status of the AIM-7 is monitored by the stores inventory function. Stores inventory is done when any of the following systems functions exist:

a. SMS power turn on.

b. All gear up and locked discrete changes state.

c. After emergency jettison.

d. When aircraft master mode is changed.

34. The weapon station encoder-decoders are turned on during weapon initialization and the AIM-7 idents are monitored. When an ident exists, the armament computer provides the weapon station power on logic. Since all weapon station encoder-decoders are turned on during the power up BIT, all stations with AIM-7 will be identified and have power enabled to the missile.

35. Weapon stations with AIM-7 idents are BIT tested. Circuits related to the AIM-7 are functionally tested and the BIT status sent to the MC system.

36. AIM-7 load failure are identified by testing the weapon insertion panel ARMAMENT switch settings on the armament computer. Pylon ARMAMENT switches R OUTBD and L OUTBD (R INBD and L INBD for aircraft AFTER AFC 253 OR 292) are set to 84. The fuselage AIM-7 do not have ARMAMENT switch settings.

37. The ability of the AIM-7 to tune to the radar frequency is tested during power up BIT. When the 3.0 minute radar transmitter time out is complete, Pulse Doppler Illuminator (PDI) ON is sent to the SMS. With the radar in operate, the radar transmitter sends an RF sample to the missile illumination antennas for 5.2 seconds. The missile tunes during this time and sends a recycle signal to the encoder-decoder. The ra-

dar must be in operate for the tune function to work. If the missile does not tune, the 3ϕ power is removed from the missile.

38. **AIM-7 Sparrow Weapon Status.** The armament computer does a complete power on BIT of the SMS weapon status at power turn on and after A/A missile trigger (detent 2) exists. The weapon status process is made up of the functions listed below:

a. no AIM-7 aboard, status is set to off.

b. AIM-7 aboard and radar not on or missile not tuned, status is set to off.

c. AIM-7 aboard and missile tuned, status is set to tuned.

d. AIM-7 aboard, missile tuned and AIM-7 selected, status is set to STBY.

e. AIM-7 aboard, missile tuned, AIM-7 selected, master arm and priority station selected, status is set to READY.

f. Hung status is set as listed:

(1) failure of battery arm to reach and maintain 22.5vdc.

(2) For fuselage stations AIM-7 Ident exists after gun/A/A missile trigger (detent 2) exists.

(3) For fuselage stations, AIM-7 Ident or battery arm exists after eject commands have been applied and battery and hydraulic activate timer times out.

(4) For pylon stations, AIM-7 Ident exists after battery and hydraulic activate timer times out.

(5) AIM-7 Ident exists after jettison has been activated.

39. **SP Test.** The SP TEST option is displayed in A/A and NAV master modes when radar and SMS are available for AIM-7 Sparrow store character missile test or tuning. In A/A mode, an AIM-7F/M must be selected for SP TEST option to be displayed. When AIM-7 test or tuning is being performed, TEST is boxed. SP TEST function may be selected if any one of the AIM-7 fails to tune at radar power up or should one detune in flight. After SP TEST has been commanded, if any AIM-7 fails to tune at the end of the tune cycle, an X is displayed at the missile form over the AIM-7 legend.

40. The radar is not available for tuning in Single Target Track (STT), Fixed Target Track (FTT), Ground Moving Target Track (GMTT), Initiated BIT (IBIT), or while in EMCON. The SMS is not available for tuning of the AIM-7 during IBIT. The tune sequence is initiated for all stations where an AIM-7 ident exists.

41. A manually commanded retune (SP TEST) resets all AIM-7 by removing power for 7 seconds. At this time all stations that have AIM-7 ID are untuned and indicated by an “X” over the Sparrow store character in the missile shape tails. After 7 seconds, the radar enters a self test mode (transmitter test) and provides a tuning sequence of proper RF waveforms into a dummy load. The X over the missile ID remains while the radar is providing RF for tuning. At the end of the tune sequence (which lasts for approximately 13 seconds) the radar returns to its commanded tactical mode and properly tuned missiles have the X removed.

42. When AIM-120 AMRAAM (AFTER AFC 253 OR 292), AIM-7 sparrow, AIM-9 sidewinder or gun is selected during SP TEST, tuning is stopped. When HARM Self Protect condition exists, SP TEST is stopped.

43. **Priority Release Sequence.** The priority release sequence is established by the weapon stations with AIM-7 idents, BIT status, tune status, launcher unlock, and sparrow reject logic. The programmed release sequence is station 8, 2 (7, 3 AFTER AFC 253 OR 292), 6, and 4. When a station status is FAIL, HUNG, LKD, or not tuned, the station is removed from the release sequence. Stations with DEGD (degrade) are moved to the last priority position. After a sparrow has been selected, the station priority can be changed to the next priority station by pressing the sparrow select switch.

44. The F/A-18A and F/A-18B are capable of carrying and launching up to four AIM-7 missiles. The missile load may be all AIM-7F, AIM-7M or AIM-7H or a mix of AIM-7F, AIM-7M and AIM-7H. As AIM-7F/M/H is launched, the missile shapes are removed from the display but the missile type will continue to be displayed.

45. The automatic launch priority sequence for the AIM-7 is stations 8, 2 (7, 3 AFTER AFC 253 OR 292), 6 and 4. If a mix of 7F, 7M and 7H is loaded,

the automatic initialization and selection is the highest priority 7H station. If no 7H is aboard, the highest priority 7M station is selected. If no 7M is aboard, the highest priority 7F station is selected.

46. After launch of an AIM-7F/M/H, the next highest priority station of the same type is automatically selected. If a 7H is launched, the next missile to be selected is a 7H if aboard or the highest priority 7M station is selected. If a 7M is launched, the next missile to be selected is a 7M if aboard or the highest priority 7F station is selected. As each station is selected, the legend SEL is displayed under the missile form for the selected station. Manual stepping of the AIM-7F/M/H's is done by pressing the weapon select switch to the forward position. Stepping the weapon station manually selects the next priority station independent of weapon type.

47. **Landing Gear Interlocks.** Weight off wheels and all gear up and locked are used for sparrow operation. All gear up and locked is used to unlock the LAU-115 and LAU-116 and enable fuselage jettison release signals. Weight off wheels also enables AIM-7 release signals.

48. **Lock/Unlock Status.** The lock/unlock status of the pylon LAU-115 and fuselage LAU-116 are monitored when an AIM-7 is loaded. During initialization the lock status is monitored for ground safety. When the all gear up and locked exists, the lock/unlock status is monitored for station status displays.

49. **SPARROW SELECT.** Selecting a sparrow is done by activating the (press) forward function of the A/A weapon select switch on the aircraft controller grip assembly. On F/A-18B, A/A aircraft master mode must be selected before sparrow can be selected using the A/A weapon select switch on the rear aircraft controller grip assembly.

50. Selecting sparrow sends a discrete ground to the armament computer. The armament computer does the sparrow functions listed:

a. aircraft master mode select

b. armament computer select

c. mission computer system select

51. **Aircraft Master Mode Select.** Selecting sparrow selects the A/A aircraft master mode, if not previously selected. Selecting any air to air weapon selects A/A master mode and overrides A/G or NAV modes. Selecting A/A master mode enables all A/A weapon stations to unlock when all gear up and locked exists. A/A master mode is sent to the MC system. The MC system initializes avionic systems for A/A operation and displays the stores display on the left digital display indicator (LDDI).

52. All weapon stations with A/A weapons loaded are tested when A/A master mode is selected. This BIT tests the circuits in the armament computer and the weapon station encoder-decoder for the weapon loaded on the station.

53. **Armament Computer Select.** The armament computer sends the sparrow select weapon code to the MC system and sets the computer internal circuits for sparrow BIT and prelaunch data processing.

54. The first sparrow in the priority release sequence is selected for release. SEL appears on the LDDI below 7F, 7M or 7H for the missile on the priority station.

55. **Mission Computer System Select.** The armament computer sends the sparrow select weapon code to the MC system on avionic mux bus. The weapon code sets the radar, HUD and stores display and sets the internal computation circuits for sparrow data processing.

56. When the MC system is set for sparrow operation a standard weapon code is sent to the SMS on avionic mux bus. The standard weapon code indicates sparrow mode is selected.

57. **PRELAUNCH DATA PROCESSING.** The MC system and armament computer do the signal data processing for the AIM-7 prelaunch signals. The radar set and air data computer system inputs are processed by the MC system and sent to the armament computer on avionic mux bus. The MC system controls the AIM-7 displays.

58. The armament computer modifies these signals to be compatible with the armament mux bus. The mux data on the armament mux bus is sent to the weapon station encoder-decoder that sends the signals to the selected AIM-7.

59. **LAUNCH.** The AIM-7 launch logic consists of the system functions listed:

a. AIM-7 missile firing

b. AIM-7 Jamming inhibit

c. AIM-7 launch initiate 2

d. AIM-7 launch initiate A and B

60. **AIM-7 Missile Firing.** The AIM-7 missile firing sequence starts when the conditions listed are true:

a. radar is in operate or emergency

b. master arm switch is at ARM

c. Sparrow selected on LDDI

d. gun/air-to-air missile trigger switch is pressed to detent 2

e. Launch delay request received from the MC system is set false

61. If launch delay request is true, launch is delayed for 3.5 seconds. Launch starts in 50 milliseconds if launch delay request is set false during the launch delay.

62. Master arm logic is ARM when the master arm discrete input exists and either weight off wheels exists or armament safety override discrete input exists. Otherwise master arm logic SAFE exists.

63. Trigger detent 2 signal sent to the armament computer is a digital coded signal that is compared with the switch excitation signal. When the signals are the same, the launch sequence is started. The paragraph below is the operation for battery and hydraulic activate. This circuit is typical for eject command 1/2 and motor fire functions.

64. The armament computer sends battery and hydraulic activate to the encoder-decoder when the trigger is pressed. The signal is sent on the armament mux bus. The encoder-decoder processes this signal to a driver enable for the battery and hydraulic activate relay. The relay energizes and sends a BIT monitor (relay energized) to the armament computer. The relay BIT enables redundant 2 which is sent to the encoder-decoder. Redundant 2 energizes a 28vdc driver which is applied to the missile through the energized contacts of the relay. The 28vdc is used to activate the missile power and hydraulic functions.

65. When the missile is powered up, battery armed is sent to the encoder-decoder. The encoder-decoder sends the signal to the armament computer to activate motor fire and on fuselage stations 4 and 6, the eject 1 and 2 commands. Motor fire and the eject commands are delayed to enable update of missile prelaunch data.

66. On fuselage stations 4 and 6, the eject 1 and 2 command signals fire the explosive charges on the LAU-116 to eject the missile from the rack. When the missile is clear of the aircraft, the motor fire signal is sent to fire the missile.

67. On pylon stations 2 and 8 (3 and 7 AFTER AFC 253 OR 292), the LAU-115 solenoid unlock signal is sent to the launcher for 1.6 seconds. AIM-7 motor fire is enabled when solenoid unlocked monitor signal is received from the launcher.

68. **Jamming Inhibit - AFTER AFC 253 OR 292.** During AIM-7 launch, the armament computer sends the launch signal to the mission computer. The mission computer relays the signal to the countermeasures computer to alter jamming to be compatable with AIM-7 missiles and to stop interference with the radar illumination signal during missile launch and tracking.

69. **AIM-7 Launch Initiate 2.** During AIM-7 launch the armament computer sends a ground discrete to energize the coil of the sparrow rec/rpt relay. When the relay energizes, the relay contacts open the ground path for the transmitter enable to the Receiver-Transmitter RT-1079/ALQ-126. The transmitter is disabled to stop interference with the radar illumination signal during missile launch and tracking.

70. **AIM-7 Launch Initiate A And B.** On 161353 THRU 163175 BEFORE F/A-18 AFC 292, before motor fire is sent to the missile, launch initiate A and B are sent to the Radar Set AN/APG-65. On 161353 THRU 163175 after F/A-18 AFC 292, before missile fire is sent to the missile, launch initiate A and B are sent to the Radar Set AN/APG-73. When the radar is not in a missile launch compatible mode, this signal causes the radar to switch to a compatible mode.

71. The missile compatible mode puts the radar in high pulse repetition frequency (PRF). When the radar set is in the missile compatible mode a PDI ON signal is sent to the SMS and missile by way of the MC system. The PDI command is on until the radar returns to search or the missile flight time has passed.

72. Flood Mode. When the radar receives launch initiate A and B and the radar is not in track or determines that it will soon loose track, flood mode is

selected. Flood mode causes the radar antenna to drop to the lower antenna limit and turns on the flood antenna. The flood antenna is a fixed feed horn that illuminates the area in front of the aircraft with the radar transmitter signal.

73. **DISPLAYS.** The MC system uses sparrow data from the SMS and data from the radar system to display sparrow functions. The sparrow displays are stores, head-up display (HUD) and radar display. Other displays (indicators) are in the lock/shoot light assembly on the canopy arch. Displays for AIM-7 are shown in figure 1.

74. **Stores Display.** Stores display is selected on the left DDI when A/A aircraft master mode is selected or when STORES is selected from the menu display DDI pushbutton switch.

75. When the armament computer weapon insertion panel ARMAMENT switches for stations 2 and 8 (3 and 7 AFTER AFC 253 OR 292) are set for AIM-7, 7F is displayed at the stations on the wing form. When an ID exists on station 2 or 8 (3 and 7 AFTER AFC 253 OR 292), a large missile form is displayed. Fuselage station missile form and 7F are displayed when AIM-7 ident exists. When an AIM-7 ident and AIM-7M designator exists 7M is displayed on stations 2, 4, 6 or 8 (3 and 7 AFTER AFC 253 OR 292). The missile form and 7F/7M are removed when the AIM-7 has been released and separation is completed. A large X will be displayed through Sparrow store character when an untuned sparrow is loaded on the station.

76. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) selecting pushbutton 19 on the store displayed and AIM-7H missile loaded sends Sparrow Change Command signal from the MC system to the armament computer. This allows upgrading to AIM-7H types missiles. When the missile is upgraded, 7H is displayed on the station in the wing form. A large X is displayed through Sparrow store character when an untuned Sparrow is loaded on the station.

77. On aircraft AFTER AFC 253 OR 292, selecting pushbutton 20 on the stores display with 7M displayed and AIM-7H missiles loaded, sends Sparrow Change Command signal from MC system to armament computer. This allows upgrading to AIM-7H type missiles. when the missile is upgraded, 7H is displayed on the station in the wing form. A large X is displayed through Sparrow store character when an untuned Sparrow is loaded on the station.

78. Station status is displayed below 7M. Station status message for AIM-7 are FAIL, DEGD, H+LKD, H+ULK, SEL, FSEL, LKD, ULK, TEST. The LKD and ULK messages indicate the LAU-115 (pylon) and LAU-116 (fuselage) lock status.

79. On aircraft AFTER AFC 253 OR 292, station status is displayed below 7M. Station status message for AIM-7 are FAIL, DEGD, SDEGD, H+LKD, H+ULK, H+TSN, SEL, LKD, ULK, TTSN, TEST. The LKD, ULK, and TSN messages indicate the rack/launcher lock status.

80. When sparrow is selected, SEL is displayed below first AIM-7 station in the priority release sequence. SEL is then displayed for the station selected as a result of stepping the priority station with the sparrow select switch on the A/A weapon select switch or sparrow launch complete function.

81. The MASTER switch status ARM or SAFE is displayed in the center of the wing form.

82. Target Sizing. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) Target Sizing option (SIZE) is displayed at pushbutton 6 on the A/A store display to allows for manual target sizing. Three manual sublevel options are available at pushbutton 6, 7, and 8. The manual sublevel options are SML, MED, LRG. With an AIM-7H selected and LRG size options manually selected, the MC system sends the medium size to the SMS. At SMS power up the SMS defaults to manual mode with medium target size selected.

83. Loft Mode. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) LOFT mode is used to increase missile maximum range and to increase missile energy at intercept.

84. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) at power up the SMS defaults to LOFT mode. LOFT mode is automatically selected and boxed with master mode selection/deselection, weapon change, station step or Sparrow launch.

Deselection on LOFT function is only available by pressing pushbutton 8 on the store format on the DDI.

85. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) pressing pushbutton switch 8 will unboxed and deselect LOFT. When LOFT is deselected both English Bias and aircraft lofting is disabled. Pressing the cage/uncage switch on the throttle grip will select aircraft lofting.

86. Home-On-Jam (HOJ) Mode. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) HOJ mode is available when AIM-7H Sparrow is selected and radar is in STBY, EMCON. If HOJ is selected and STT LOS information is valid and the english bias commands are less than 30 degrees above the horizontal, the MC sends seeker head command to point seeker head at single target track (STT) line of sight (LOS) for and STT LOS launch. If HOJ is selected without STT LOS being valid, the MC send seeker head command to point the seeker head at boresight for an aircraft boresight launch.

87. Helicopter (HELO) Mode. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) HELO mode is available when AIM-7H is selected. HELO mode commands the missile into a special helicopter acquisition and track mode.

88. Cage/Uncage. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) with AIM-7H selected, depressing the cage/uncage switch for less than 0.8 seconds shall commands the Radar into STT on the launch and steering (L&S) target instead of selecting or deselecting lofted steering. Depressing the cage/uncage switch for longer than 0.8 seconds shall toggle the selection of lofted steering.

89. **Data Freeze Display.** The data freeze display is provided as an option on the stores display. This option is only available if the radar is in single target track and the trigger second detent is depressed.

90. Pressing the DATA pushbutton switch displays the weapon release data that was frozen and stored at actual or simulated weapon release. The data is displayed between the bottom line of the program parameters and the first line of cautions on the DDI. The data is stored until overwritten by new data at the next weapon release.

91. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) Parameters frozen and stored at weapon release are:

a. RNG - target range in feet.

b. VC - Closing velocity in knots.

c. V - target velocity in Mach.

d. YALT - delta (differential) altitude in feet.

e. ASPCT - aspect angle in degrees.

f. RMAX - maximum range in nautical miles, when Rmax is greater than Raero or when Raero is greater than Rmax, the value of Raero will replace the value of Rmax.

g. ALT - altitude in feet (with B for barometric source).

h. TAS - true airspeed in knots.

i. FPA - flight path angle in degrees.

j. ROLL - roll angle in degrees L (left) or R (right).

k. BEAM - beam closing rate in feet per second.

l. RMIN - minimum range in nautical miles.

m. RNE - the target no-escape launch range in nautical miles.

n. TOF - time of flight in minutes and seconds.

92. **Radar And HUD Displays.** Displays for launch and steering are on the HUD and radar displays. The radar display is on the right DDI.

93. Sparrow Select and Weapon Count Display. The radar and HUD displays in figure 1 show weapon select (7F/7M/H and weapon count (4). The 4 indicates the number of AIM-7 that are available for

release. The symbol counts down when an AIM-7 is released. The X through the Sparrow store character shows the MASTER switch status. The X indicates SAFE and the removal of the X indicates ARM is selected.

94. Attack/Steering Symbols. The symbols used to steer the aircraft and indicate launch logic are listed below:

a. range symbol and tab

b. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) range maximum (Rmax), range no-escape (Rne), range minimum (Rmin), and aerodynamic range (Raero)

c. allowable steering error (ASE) circle

d. steering dot

e. target designator

f. flood illumination display

g. missile time of flight

h. maximum aspect cue (AFTER AFC 253 OR 292)

i. maximum seeker range cue (AFTER AFC 253 OR 292)

95. Range Symbol and Tab. Target range is displayed on the radar display as a range symbol superimposed on the B-sweep and on the HUD as a range tab on the range bar. The range symbol and tab are displayed when the MC system is receiving range track data from the radar system. These symbols are used with AIM-7 launch zones to determine the in range function.

96. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) Rmax, Rne, Rmin and Raero. Rmax is the computed maximum range that the AIM-7 can be launched and hit the target. Rne is the computed maximum range the AIM-7 can be launched and hit a maneuvering target. Rmin is the minimum range the missile can be launched. Raero is displayed when the launch aircraft has more velocity than the missile but the missile is still capable of a 5g maneuver.

97. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) These symbols vary in range depending on the attack situation of the interceptor and target. The MC system computes these values as a function of radar inputs and missile flight constants. In range is a function of the range symbol or range tab being positioned between Raero and Rmin.

98. Allowable Steering Error Circle. The ASE circle is used with the steering dot to steer the intercept aircraft for AIM-7 launch. The circle varies in size as a function of target/interceptor position and missile abilities.

99. Steering Dot. The steering dot is positioned as a function of interceptor and target flight angles. When the steering dot is inside the ASE circle the intercepter is flying a lead collision course with the target.

100. Target Designator. The target designator is displayed on the HUD to indicate the radar antenna line of sight.

101. Flood Illumination Display. When the radar is not tracking and the AIM-7 is fired, FLOOD is displayed on the HUD and radar display. The circle on the HUD is a 12° circle which represents the flood illumination coverage. The target is visually flown to be positioned in the circle before launch.

102. Missile Time of Flight. Missile time of flight is displayed on the HUD to indicate the number of seconds from launch to missile impact with the target. Missile time of flight is computed by the mission computer system using radar range and range rate data.

103. Maximum Aspect Cue. AFTER AFC 253 OR 292, the maximum aspect cue is a two digit number between 0-18, and is displayed to the left of the shoot cue, at the bottom of the radar display. The maximum aspect cue indicates shot quality. The higher the number displayed, the greater the chance of intercepting the target.

104. Maximum seeker range cue. AFTER AFC 253 OR 292, the maximum seeker range cue is displayed on the radar B-sweep when radar is in STT, the target is within 1.2 times Rmax, no ECM is encountered,

and Sparrow maximum seeker range is the only factor keeping the SHOOT cue from being displayed.

105. Pulse Doppler Illumination (PDI) Mode. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000) PDI mode is available when radar is in STT and Sparrow is selected, and no AMRAAM in flight (AFTER AFC 253 OR 292). When PDI is selected at pushbutton 1 on radar display, the MC system sends the Terminal Phase Illumination (TPI) command to the radar. When the radar receiver TPI command, it transitions to PDI mode.

106. **Shoot Cue And Lock.** The shoot cue on the radar and HUD display and SHOOT/strobe light on the lock/shoot light assembly function the same. The lock light comes on when the radar is radar/angle tracking.

107. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) The shoot cue/light comes on when the conditions listed below are set:

a. AIM-7 selected and tuned

b. radar is range/angle tracking

c. steering dot is inside ASE circle

d. MASTER switch is set to ARM

e. range symbol greater than Rmin and less than Rmax or less than Raero if displayed.

f. target not in main beam clutter

108. WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000) The shoot cue/light flashes when target range is less than Rne and greater than Rmin. When instrument panel dimmer control is set between OFF and BRT the shoot strobe light does not operate.

109. **AIM-7 BUILT-IN TEST.** Table 1 lists the BIT modes and the signals tested for the modes. These BIT tests determine the station status FAIL and DEGD on the stores display.

110. FAIL status is set when BIT fails one of the signals listed:

a. missile ident/missile gone

b. battery armed

c. eject 1 and 2 (fuselage)

d. motor fire

e. launcher lock command/monitor

f. launcher unlock command/monitor

g. armament mux bus

h. dogfight/sweep control

i. launch command

j. battery and hydraulic activate

k. recycle

l. PD command

m. LAU-115 solenoid unlock

111. DEGD status is set when BIT fails one of the signals listed:

a. altitude switching 1 and 2

b. inflight switch

c. english bias yaw/roll gain switch

d. english bias pitch

e. head aim pitch/true airspeed

f. head aim yaw/range at launch

g. roll command

h. sweep select

i. simulated doppler

j. eject 1 or 2 (fuselage)

112. Initiated BIT with a high current driver test is done only when an AIM-7 ident does not exist, MASTER switch is set to ARM, and ARMAMENT OVERRIDE switch is set to on.

113. **AIM-7 END TO END TEST.** With AIM-7 End to End Tester 74D70050-1001 installed on station to be tested, the AIM-7 end to end test may be done at the end of maintenance bit by pressing cage/uncage switch on right throttle grip. Under TST for station tested, STBY, RDY or FAIL will be displayed.

114. **SIMULATION (SIM) MODE.** SIM mode is selected by a pushbutton switch on the stores display. Selecting SIM mode provides mechanization for simulated weapon delivery for A/A and A/G weapons. AIM-7 simulation mode mechanization does not require that an AIM-7 be loaded on the aircraft. For detailed description of AIM-7 SIM mode operation refer to WP026 01 in this manual.

115. **JETTISON.** The jettison function for fuselage and pylon AIM-7 are different. Pylon AIM-7 can be selectively jettisoned or emergency jettison/auxiliary released. Fuselage AIM-7 can only be selectively jettisoned.

116. Selective jettison functions require that the launcher/rack are unlocked. Setting the SELECT JETT switch to any position other than SAFE will unlock any launcher/rack that has not been unlocked when all gear up and locked exists.

117. **Fuselage AIM-7 Jettison.** Jettison of fuselage stations is done by selecting L FUS MSL (station 4) or R FUS MSL (station 6) on the SELECT JETT switch on the LH vertical console control panel assembly. Pressing JETT will disable motor fire and send eject 1 and 2 to the weapon station encoder-decoder. The encoder-decoder sends 28vdc to the launcher explosive charges that cause the missile release. To enable the selective jettison function the system functions listed below must be set:

a. LAU-116 unlocked

b. all gear up and locked interlock exists

c. MASTER switch set to ARM

118. **Pylon AIM-7 Jettison.** Selective and emergency jettison of pylon AIM-7 both fire the BRU-32 cartridges. Firing the cartridges releases the AIM-7 and LAU-115 from the BRU-32. Both types of jettison are done with motor fire disabled from the missile.

119. Selective Jettison. The LO (station 2) or RO (station 8) LI (station 3, AFTER AFC 253 OR 292), RI (station 7, AFTER AFC 253 OR 292) on the flaps, landing gear and stores indicator panel are pressed to select which pylon AIM-7 will be jettisoned. The SELECT JETT switch can be set to either STORES or RACK LCHR for the pylon AIM-7. Pressing JETT will disable motor fire and send fire 1 and 2 BRU-32 signals to the weapon station encoder-decoders. To enable the selective jettison function the system functions listed below must be set:

a. all gear up and locked interlock exists

b. BRU-32 unlocked

c. MASTER switch set to ARM

120. Emergency Jettison. The explosive charges in the BRU-32 can be energized by emergency jettison. When emergency jettison fails to release the LAU-115 from the BRU-32 auxiliary release can be done.

121. Emergency jettison is enabled when the aircraft is weight off wheels or the LDG GEAR handle is UP. Pressing the EMERG JETT switch on the master arm control panel assembly enables 24/28vdc essential to be sent to the explosive charges in the BRU-32.

122. Auxiliary Release. When fired the auxiliary cartridge will enable a gravity release of the LAU-115. To enable auxiliary release, the system switches/functions must be set:

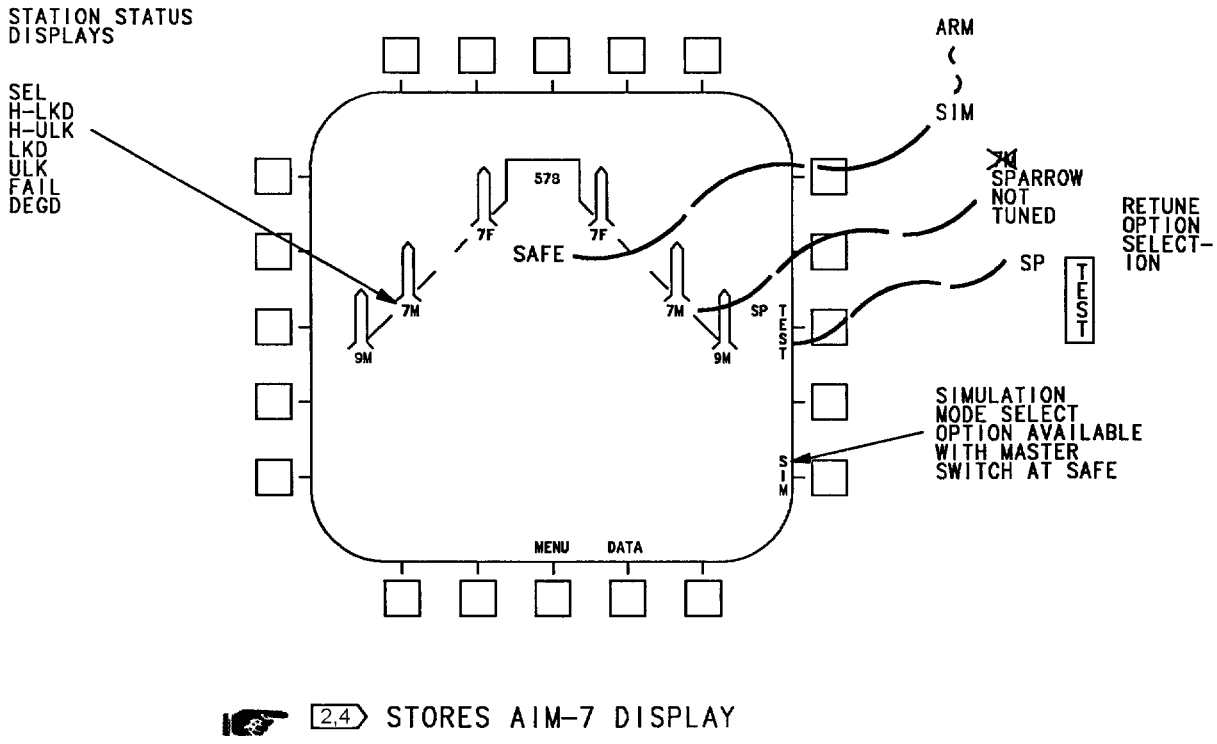
a. MASTER switch to ARM

b. AUX REL switch set to ENABLE

c. JETT switch pressed (SELECT JETT switch)

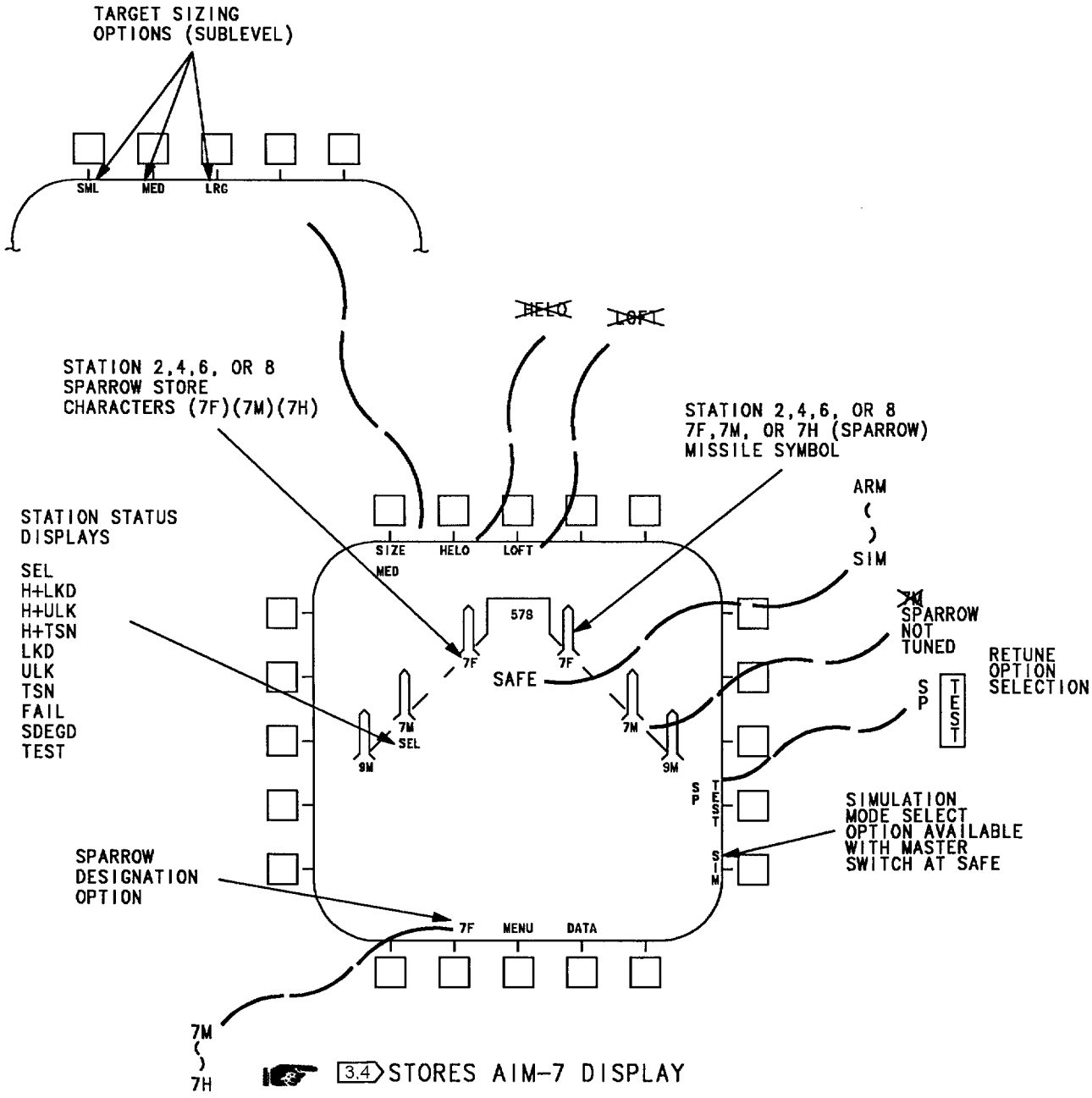
Table 1. AIM-7 BUILT-IN TEST

Test Signal	Initial (Power Up) BIT	Initiated BIT	Initiated BIT with High Current Drivers	Periodic BIT/Degrade Assessment
AIM-7 Ident	X	X	X	X
English Bias Pitch	X	X	X	X
Altitude 1 and 2	X	X	X	X
Battery Armed	X	X	X	X
Simulated Doppler	X	X	X	X
Eject 1 and 2 (fuselage)			X	
Motor Fire			X	
Launcher Lock Command/Monitor	X	X	X	
Launcher Unlock Command/Monitor	X	X	X	
Armament Mux Bus	X	X	X	X
Inflight Switch	X	X	X	X
Dogfight/Sweep Control	X	X	X	X
Battery and Hydraulic Activate			X	
Roll Command	X	X	X	X
Sweep Select	X	X	X	X
English Bias Yaw/Roll Gain Command	X	X	X	X
Recycle	X			
PD Command	X			
Head Aim Pitch/True Airspeed	X	X	X	X
Head Aim Yaw/Range at Launch	X	X	X	X
LAU-115 Solenoid Unlock Monitor			X	



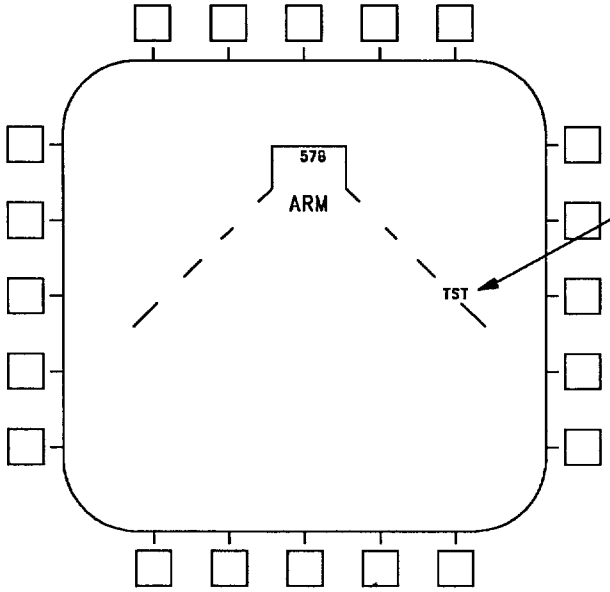
04800101

Figure 1. AIM-7 Sparrow Displays (Sheet 1)

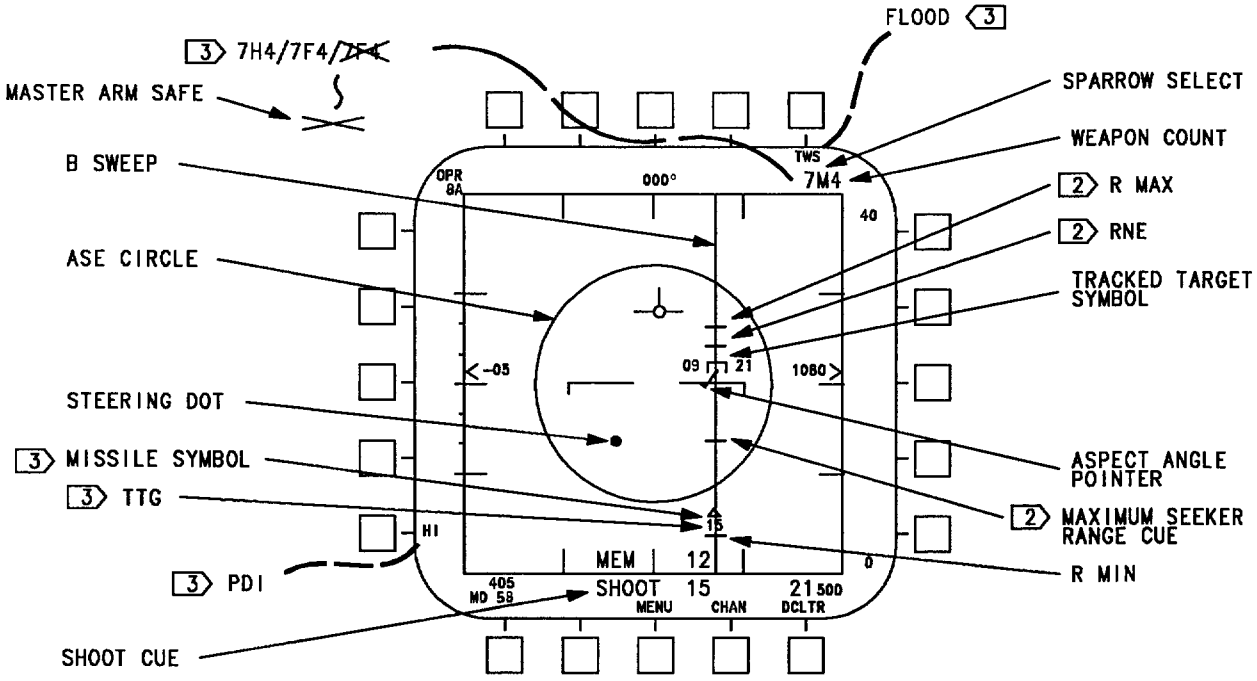


04800102

Figure 1. AIM-7 Sparrow Displays (Sheet 2)



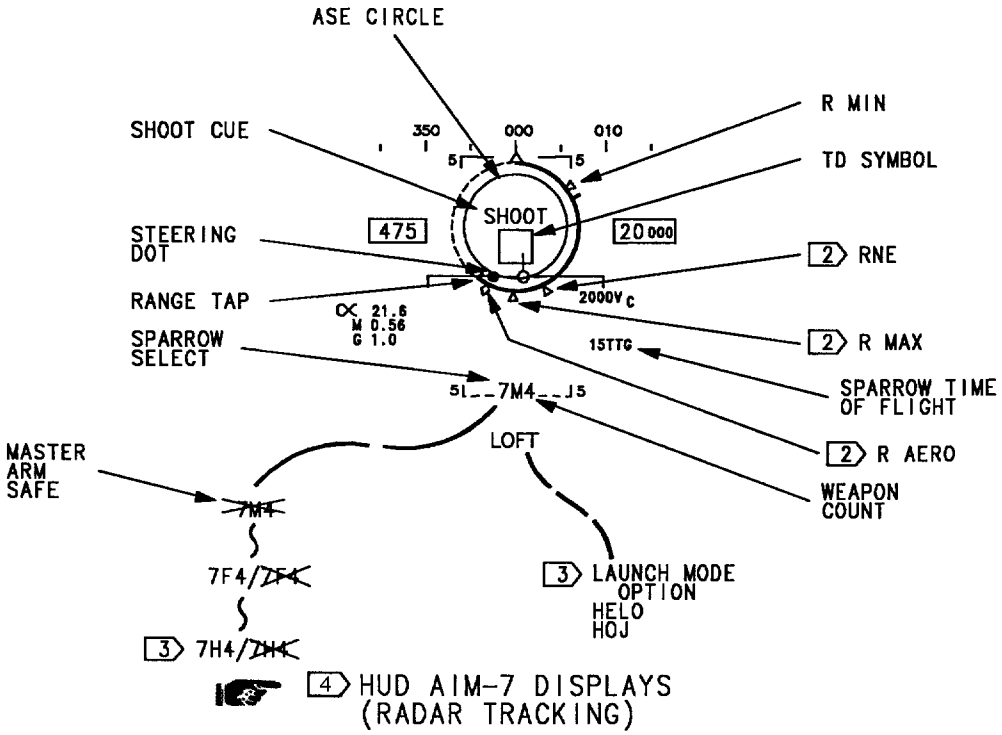
4 AIM-7 END TO END TEST DISPLAY
MASTER ARM AT ARM
CAGE UNCAGE ACTUATED

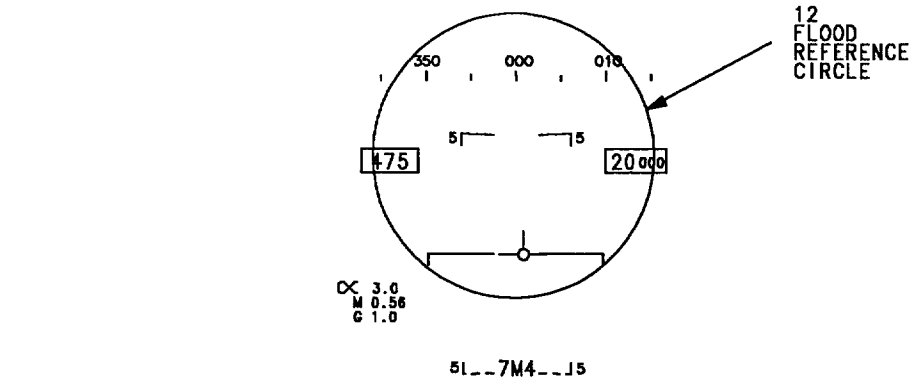


4 RADAR AIM-7 DISPLAY (RADAR TRACKING)

04800103

Figure 1. AIM-7 Sparrow Displays (Sheet 3)

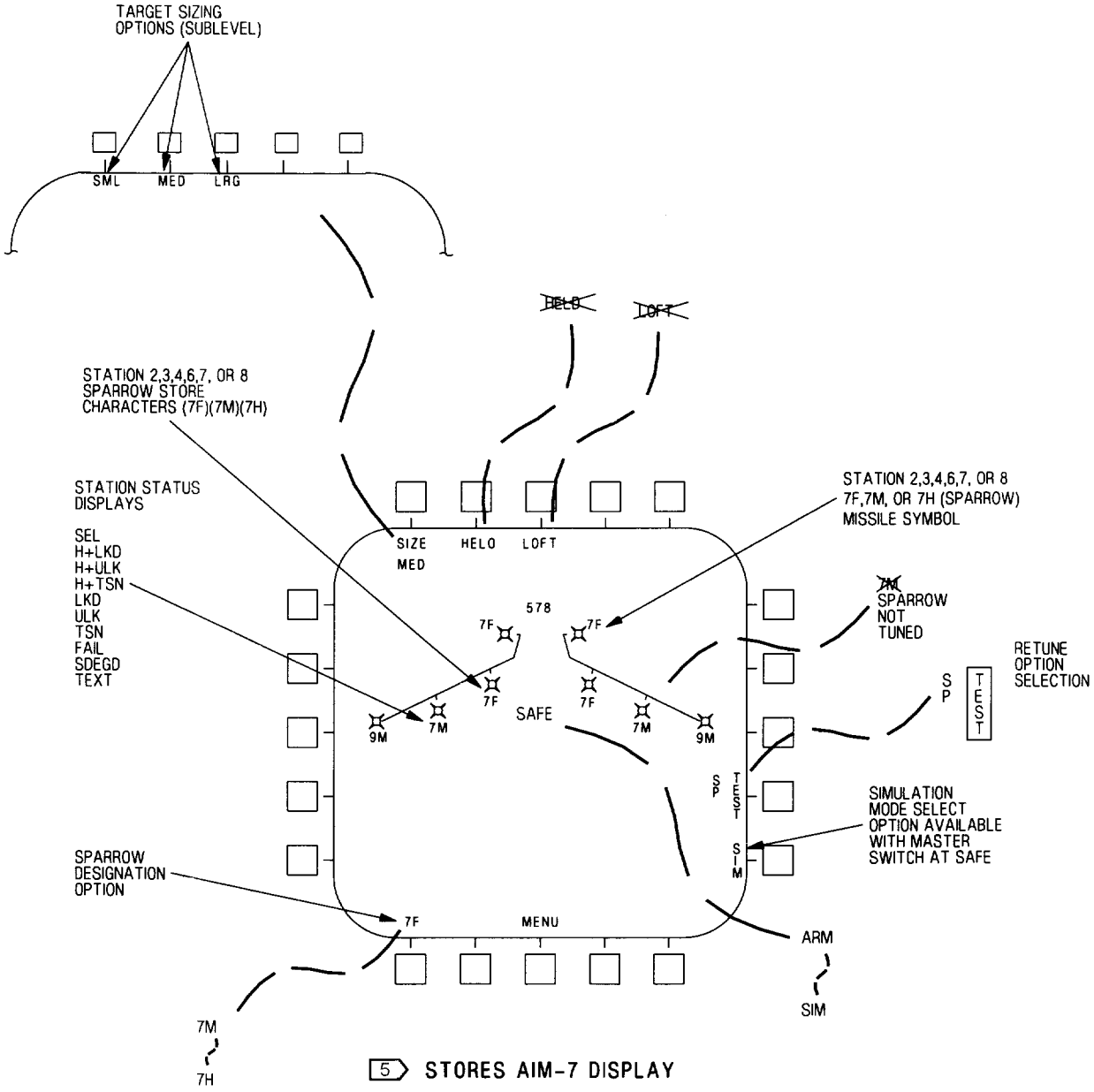




HUD FLOOD ILLUMINATION DISPLAY

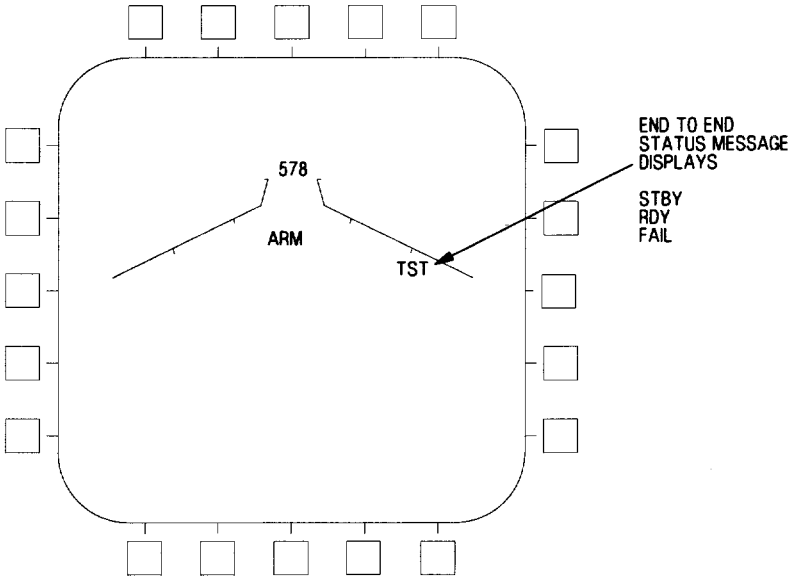
04800104

Figure 1. AIM-7 Sparrow Displays (Sheet 4)

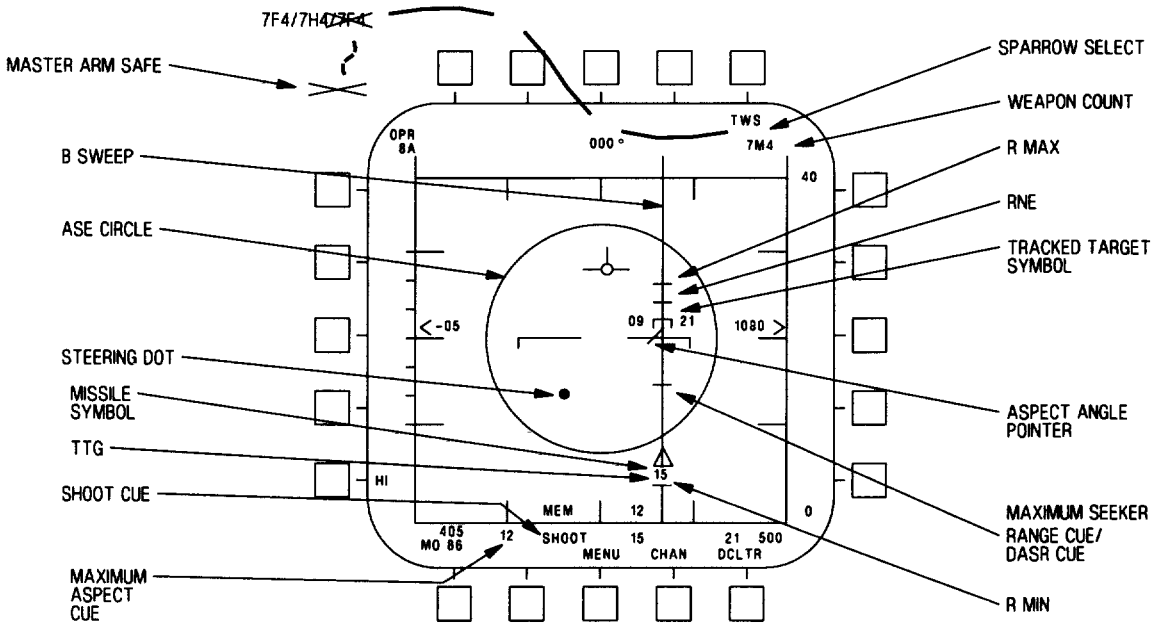


04800105

Figure 1. AIM-7 Sparrow Displays (Sheet 5)



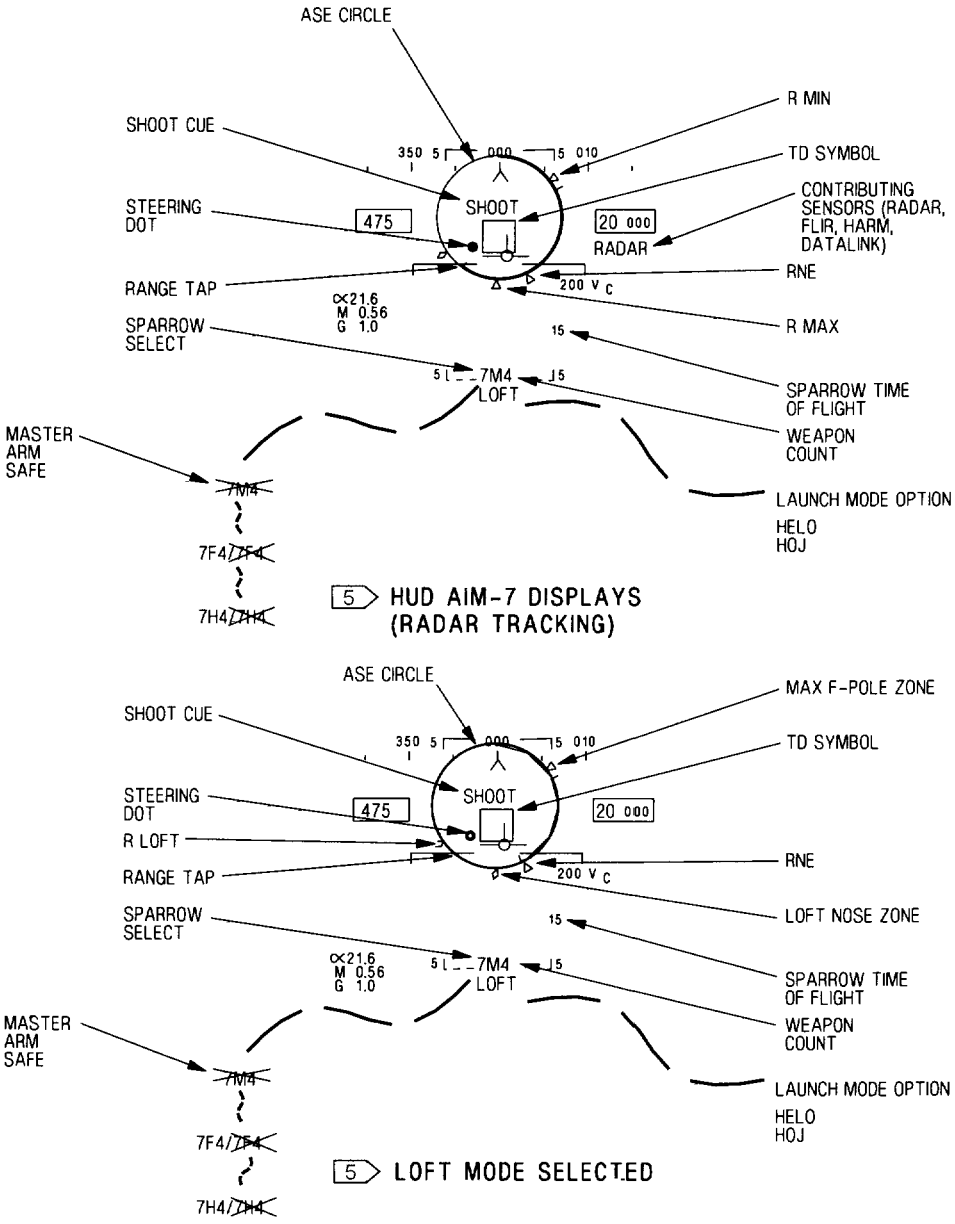
5 AIM-7 END TO END TEST DISPLAY
MASTER ARM AT ARM
CAGE UNCAGE ACTUATED



5 RADAR AIM-7 DISPLAY (RADAR TRACKING)

04800106

Figure 1. AIM-7 Sparrow Displays (Sheet 6)



LEGEND

1. ABBREVIATIONS: SEE WP002 01.

2 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A (A1-F18AC-SCM-000).

3 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000).

4 161353 THRU 163175 BEFORE F/A-18 AFC 252 OR AFC 253.

5 161353 THRU 163175 AFTER F/A-18 AFC 252 OR AFC 253.

04800107

Figure 1. AIM-7 Sparrow Displays (Sheet 7)

ORGANIZATIONAL MAINTENANCE

PRINCIPLES OF OPERATION

SCHEMATICS - AIM-7 SPARROW SIMPLIFIED

STORES MANAGEMENT SYSTEM

Reference Material

None

Alphabetical Index

Subject	Page No.
AIM-7 LAU-115 Launcher Simplified Schematic, Figure 3	16
AIM-7 LAU-115 B/A and LAU-115 C/A Launcher Simplified Schematic After AFC 253 or 292, Figure 5	20
AIM-7 LAU-116 Launcher Simplified Schematic, Figure 4	18
AIM-7 Sparrow Simplified Schematic, After AFC 253 or 292, Figure 2	11
AIM-7 Sparrow Simplified Schematic, Before AFC 253 or 292, Figure 1	2
Introduction	1

Record of Applicable Technical Directives

Type/ Number	Date	Title and ECP No.	Date Incorp.	Remarks
F/A-18 AFC 74	-	Installation of Aircraft Wiring Provisions for Additional Weapons Capability (ECP-MDA-F/A-18-00090)	1 Dec 89	ECP Coverage Only
F/A-18 AFC 253	TBD	U.S. Naval Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00560R1)	1 Nov 01	-
F/A-18 AFC 292	TBD	U.S. Marine Corps Reserves A+ Avionics Upgrade, Incorporation of (ECP MDA-F/A-18-00583)	1 Nov 01	-

1. INTRODUCTION.

2. The schematics in this work package are provided to support the data in WP048 00.

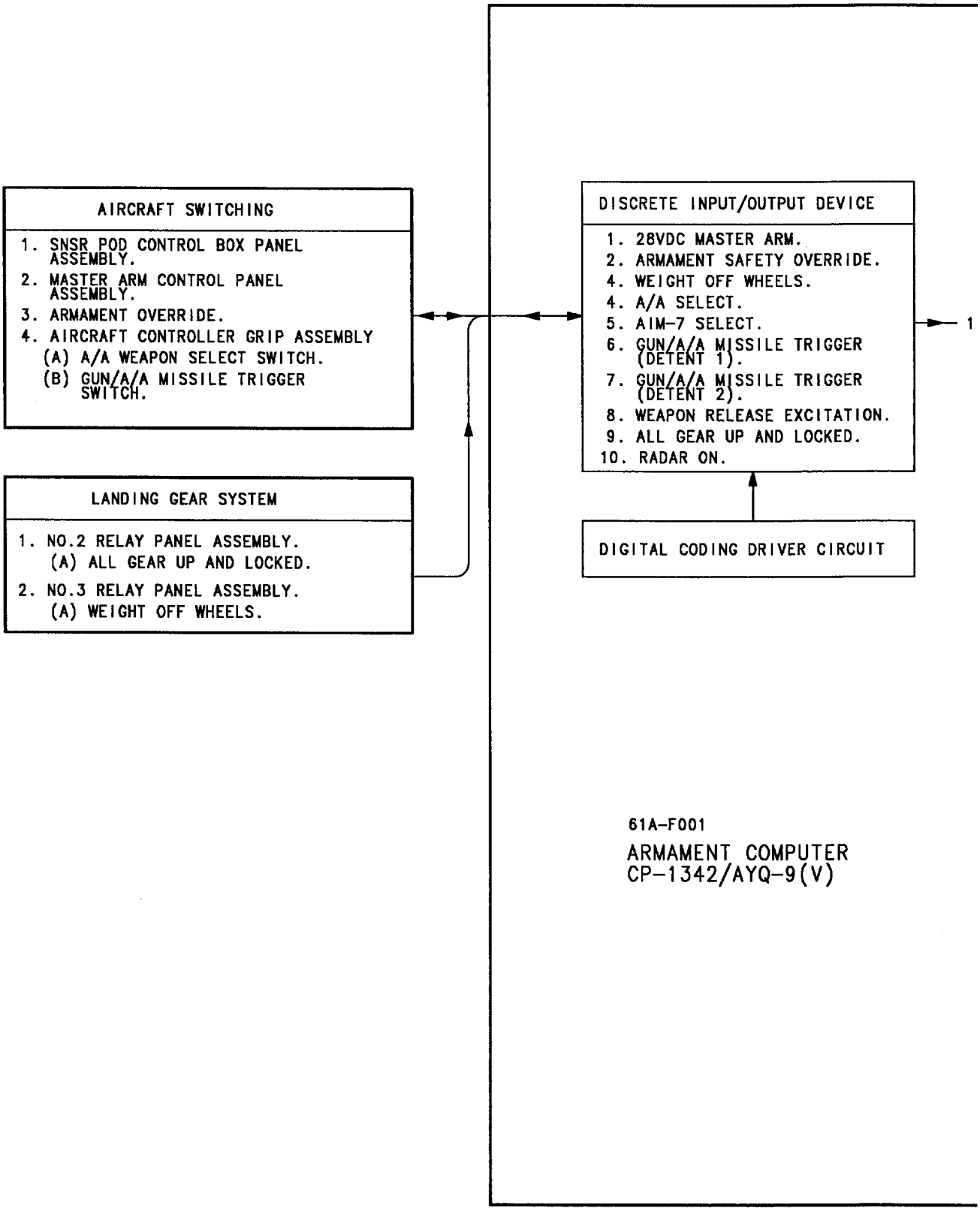


Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 1)

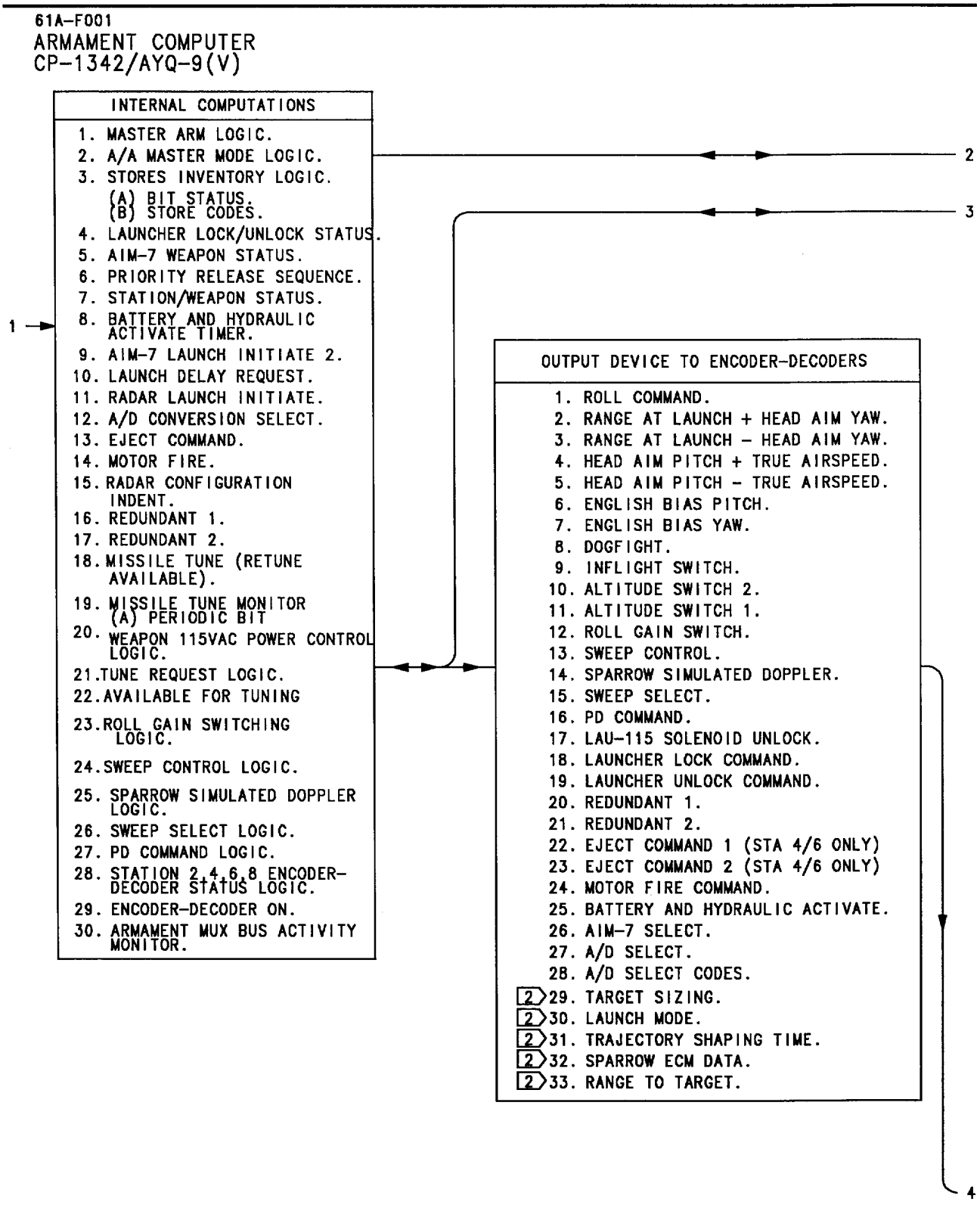


Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 2)

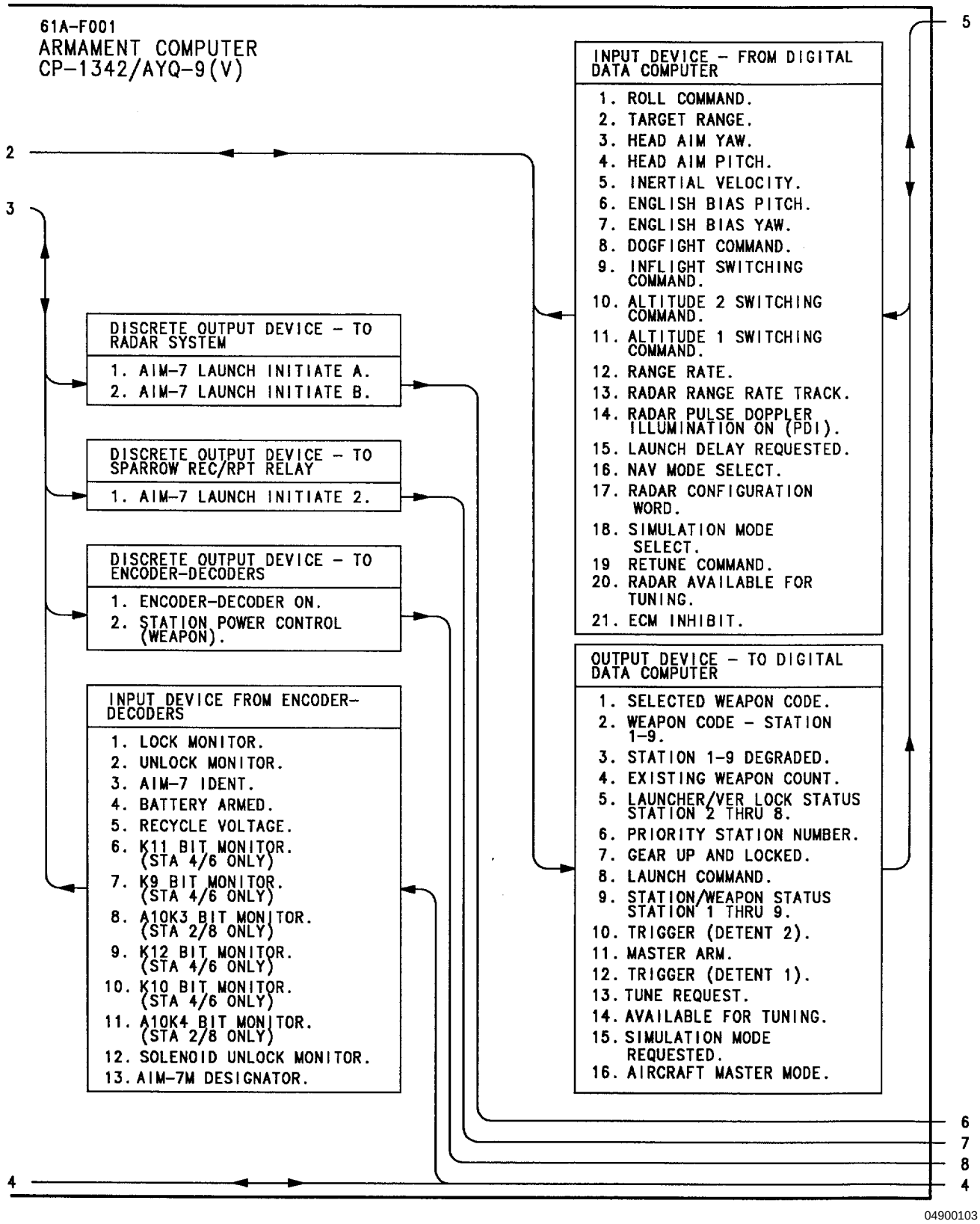


Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 3)

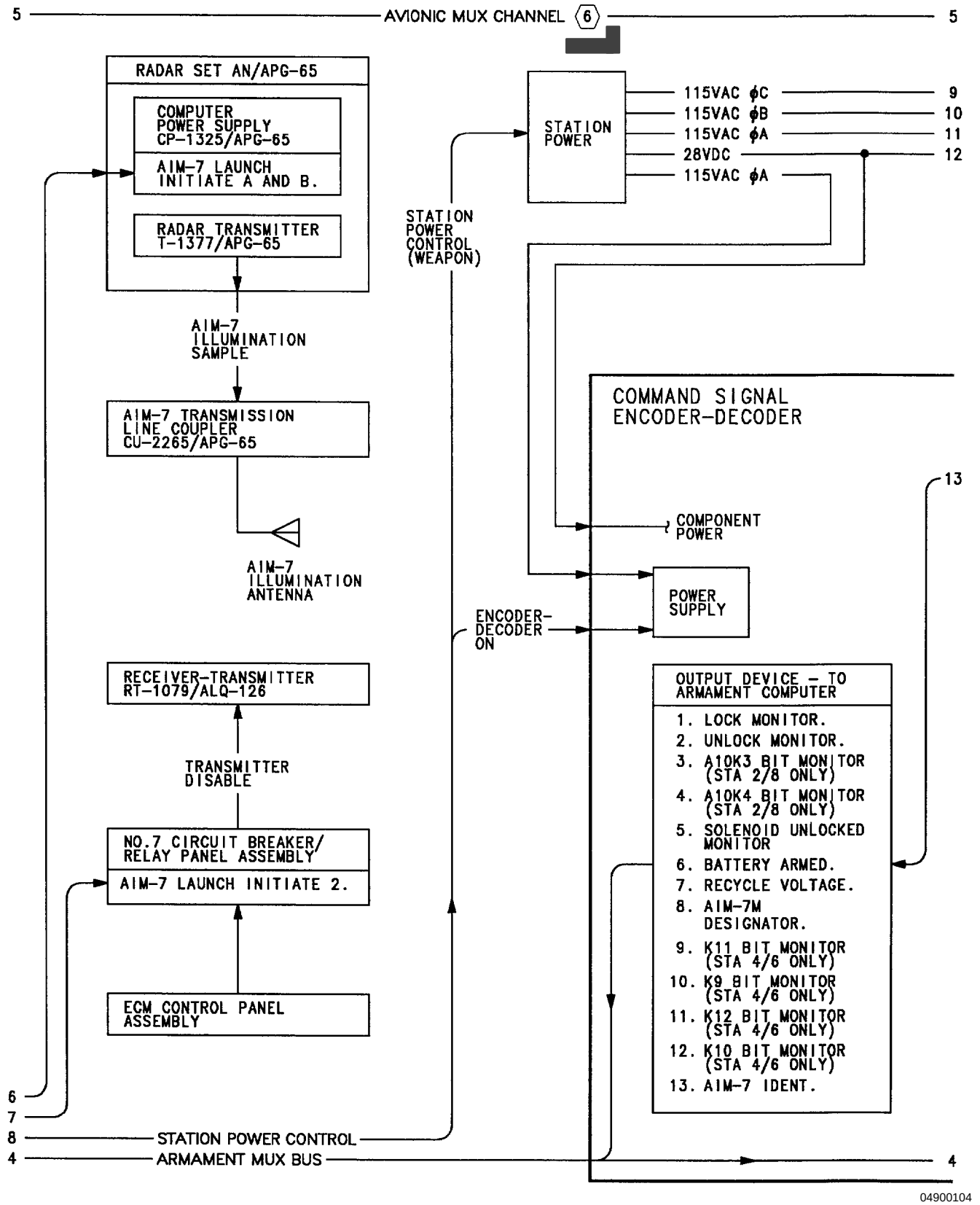
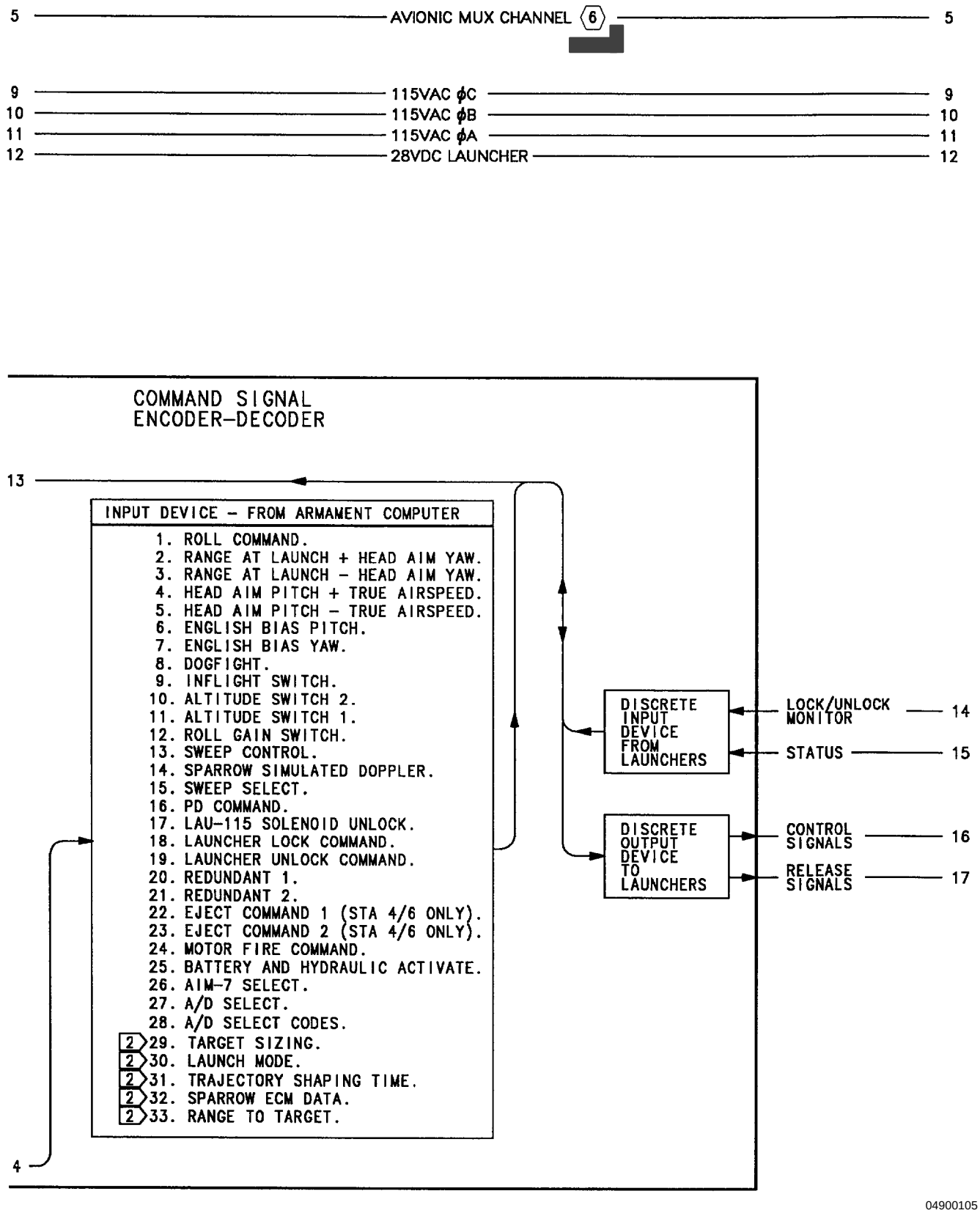


Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 4)



04900105

Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 5)

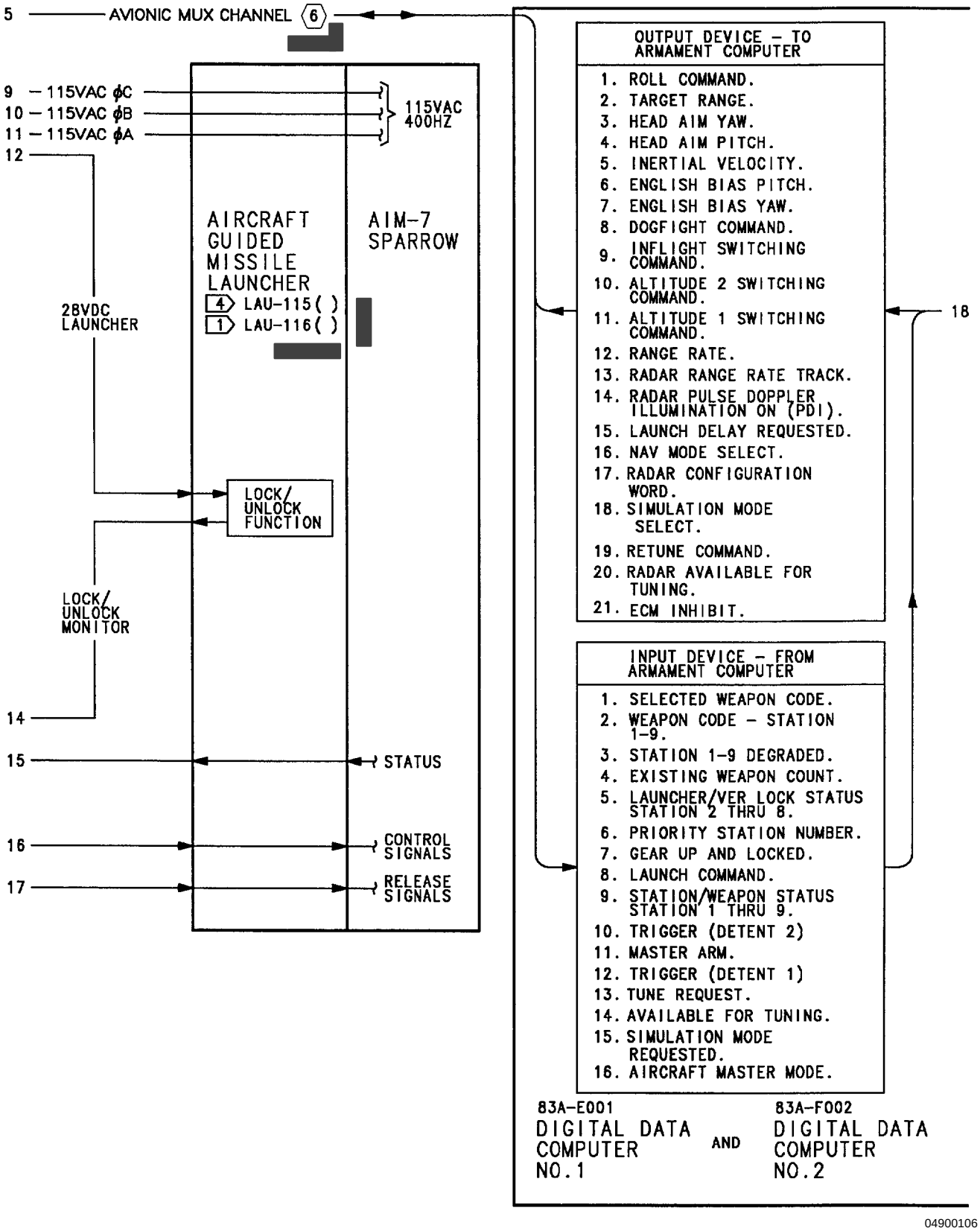
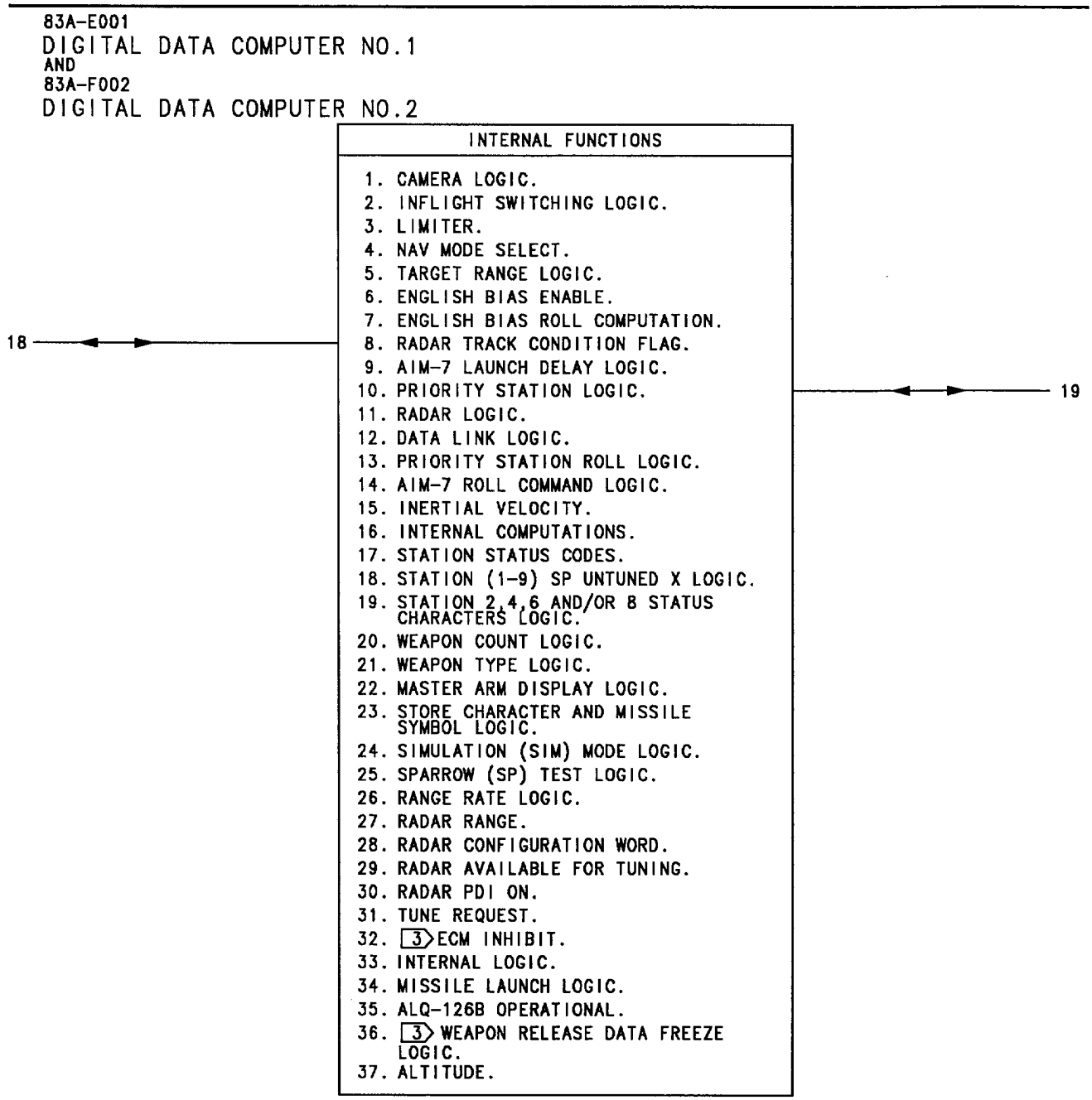


Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 6)



04900107

Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 7)

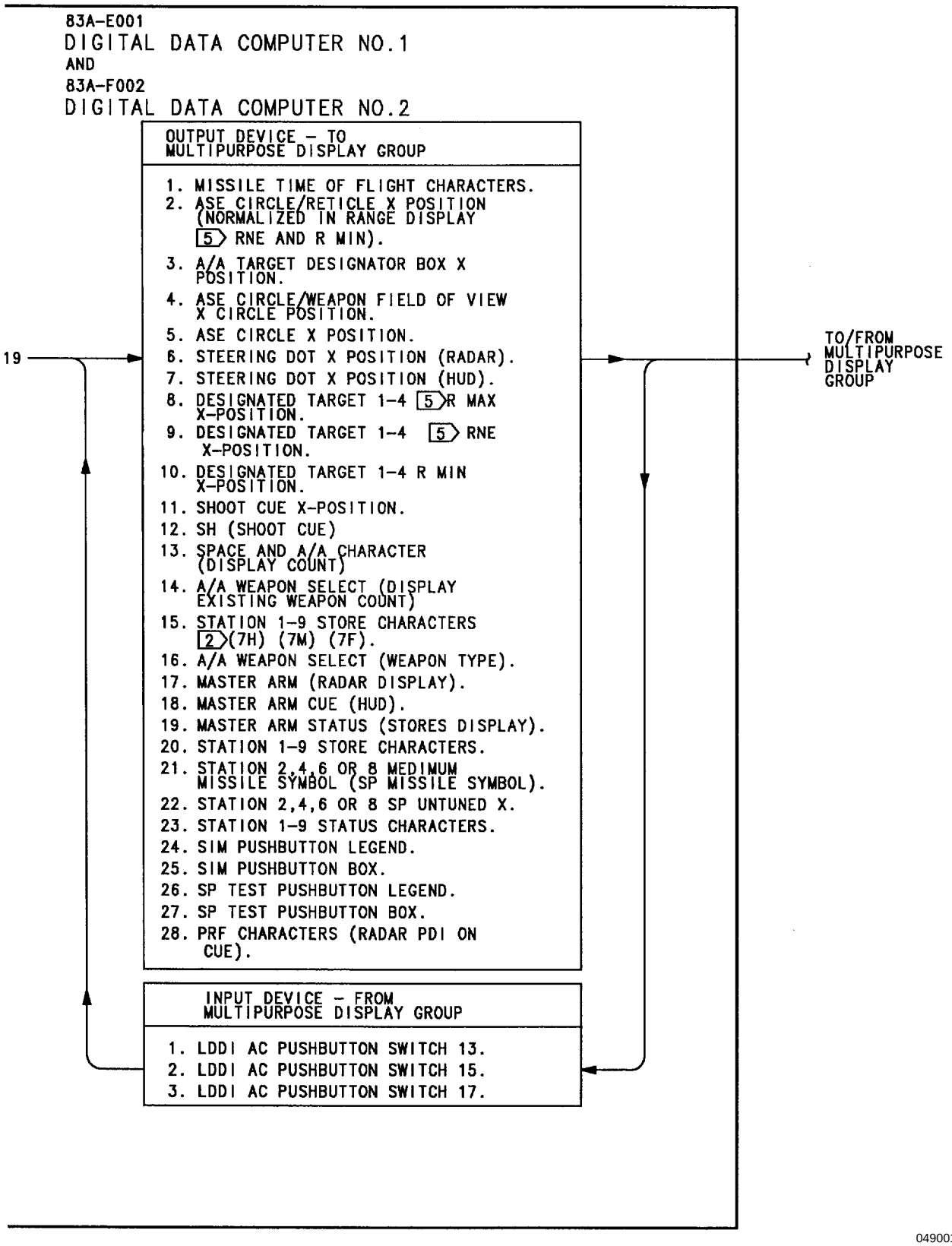


Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 8)

LEGEND

1 WEAPON STATION 4 AND 6 AIM-7 (FUSELAGE).

2 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 92A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 92A AND UP (A1-F18AC-SCM-000).

3 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 85A+ AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 87X AND UP (A1-F18AC-SCM-000).

4 WEAPON STATION 2 AND 8 AIM-7 (PYLON).

5 WITH ARMAMENT COMPUTER CP-1342/AYQ-9(V) CONFIG/IDENT 89A AND UP AND DIGITAL DATA COMPUTER CONFIG/IDENT 89A AND UP (A1-F18AC-SCM-000).

6 SEE APPLICABLE AVIONIC MUX CHANNEL SCHEMATIC, (A1-F18AC-741-500).

Figure 1. AIM-7 Sparrow Simplified Schematic (BEFORE AFC 253 OR 292) (Sheet 9)

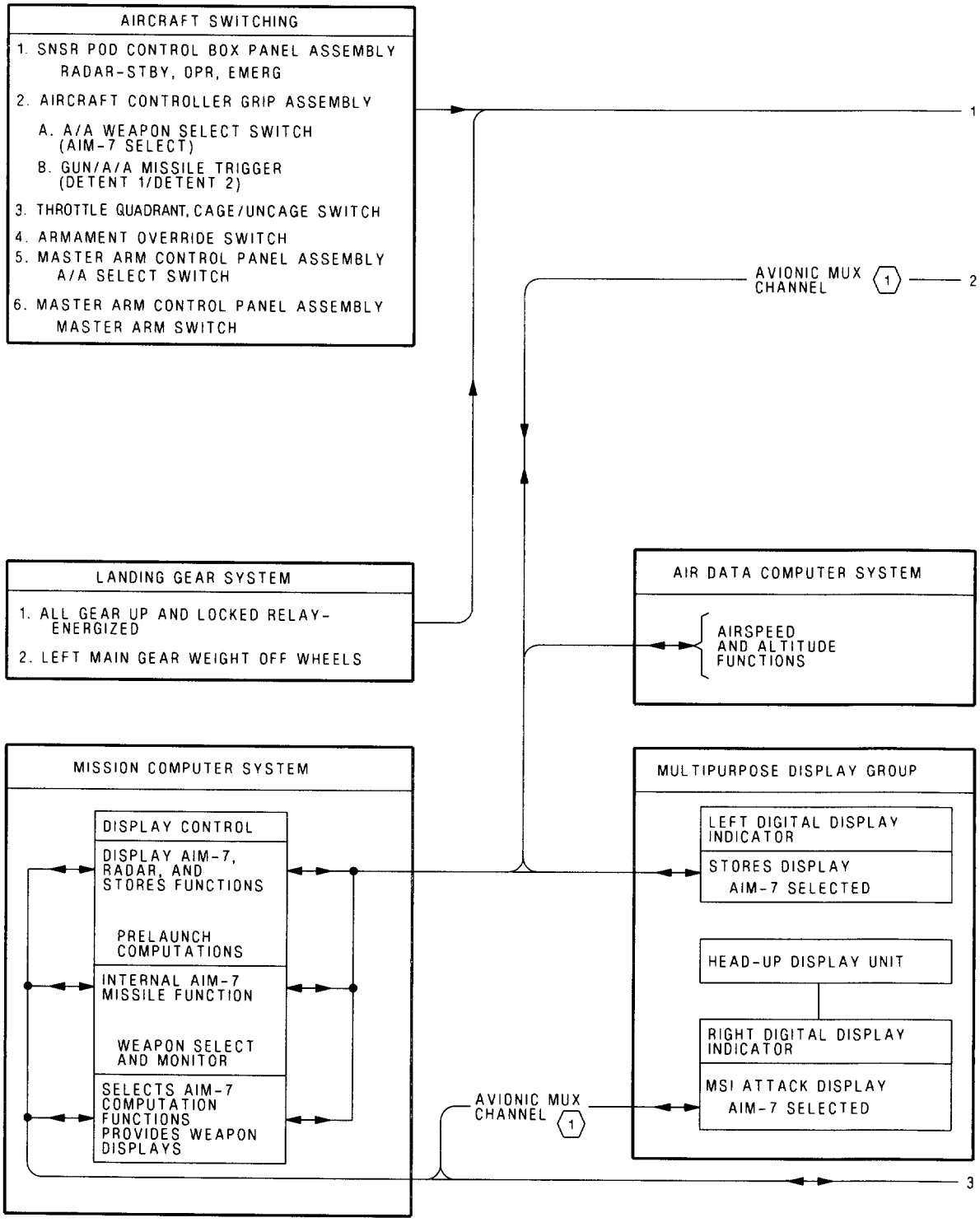
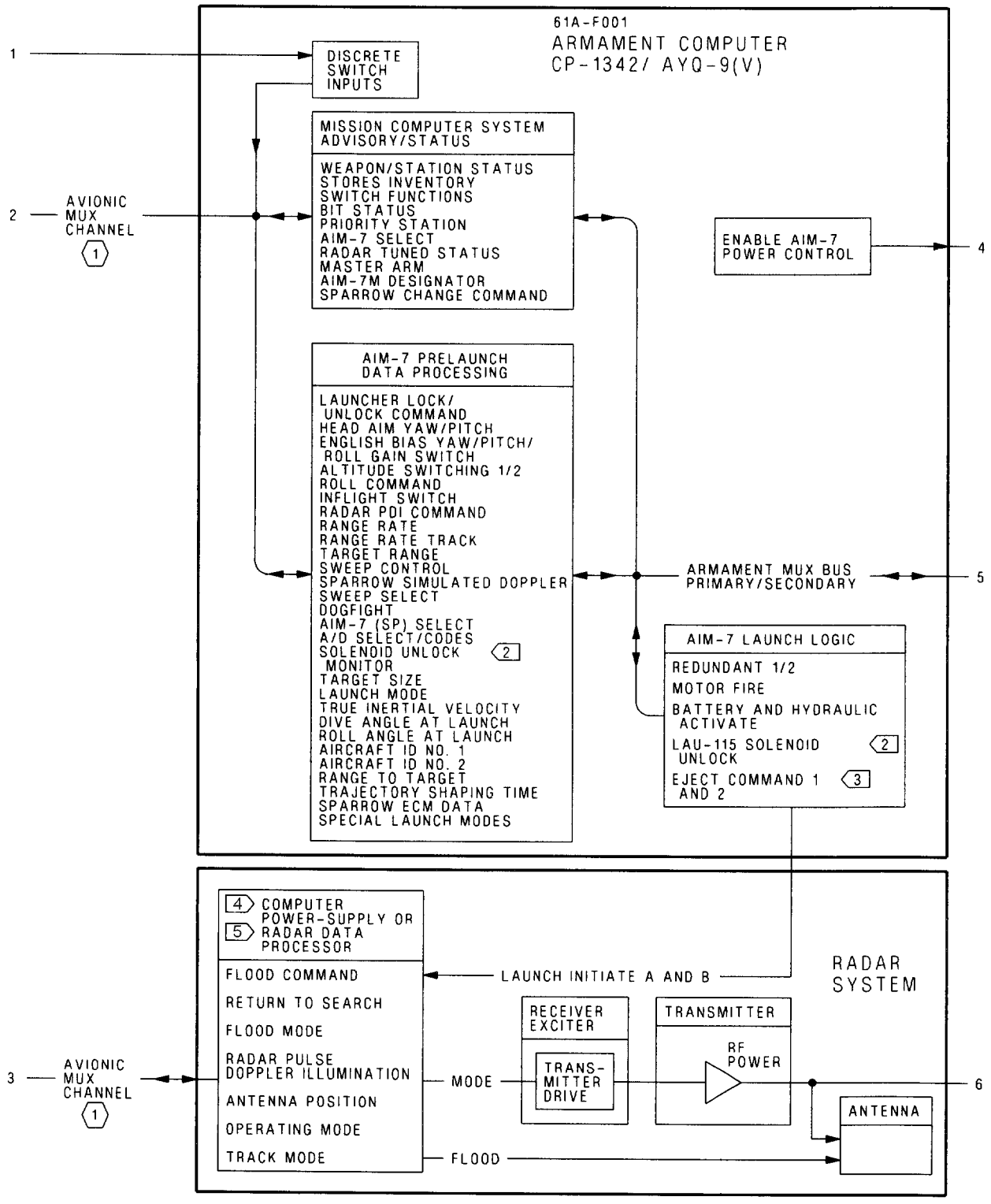
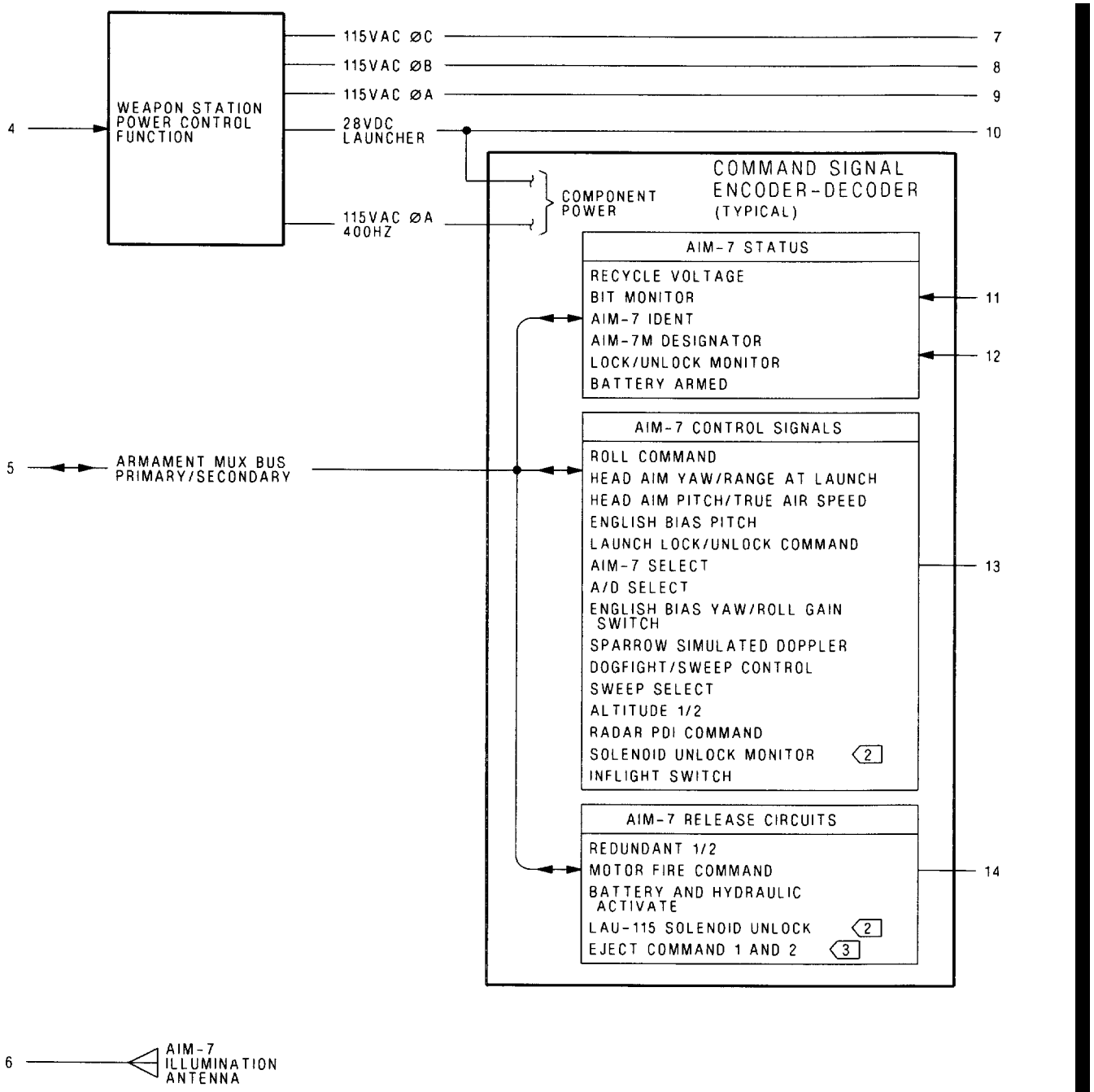


Figure 2. AIM-7 Sparrow Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 1)



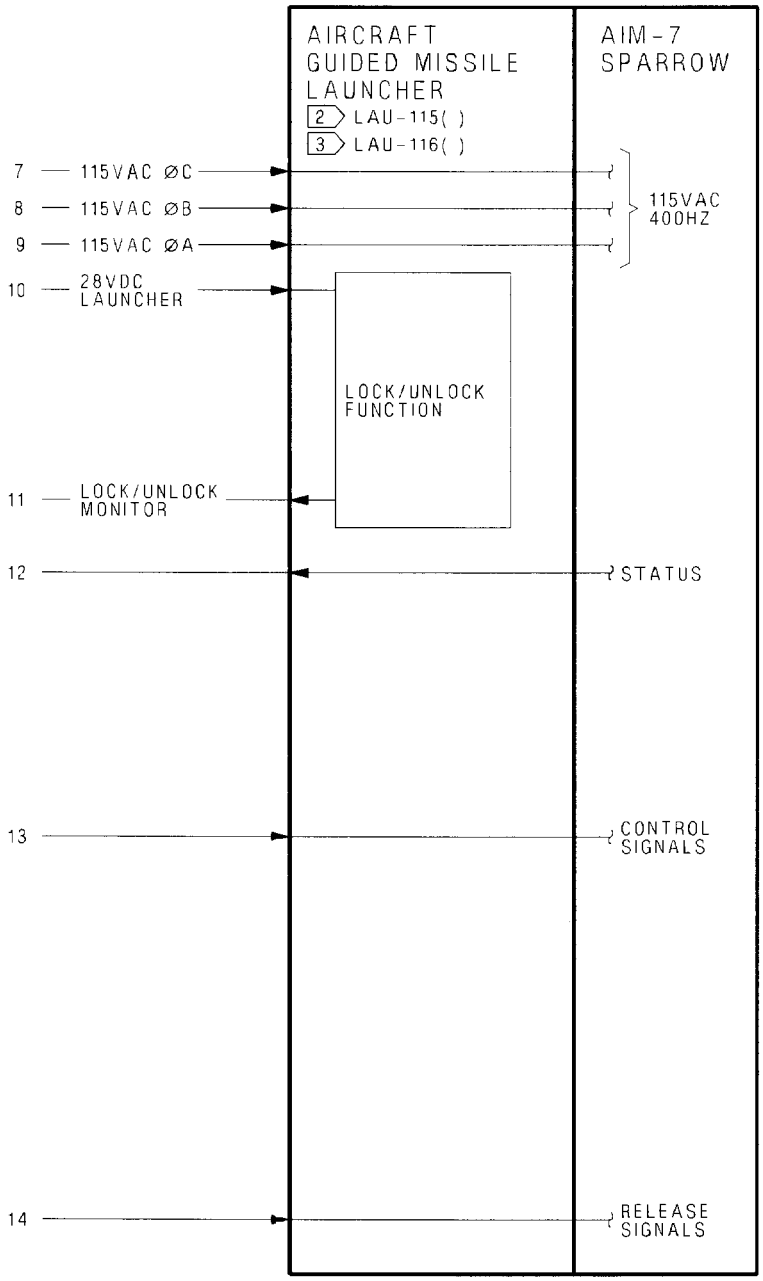
04900202

Figure 2. AIM-7 Sparrow Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 2)



04900203

Figure 2. AIM-7 Sparrow Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 3)

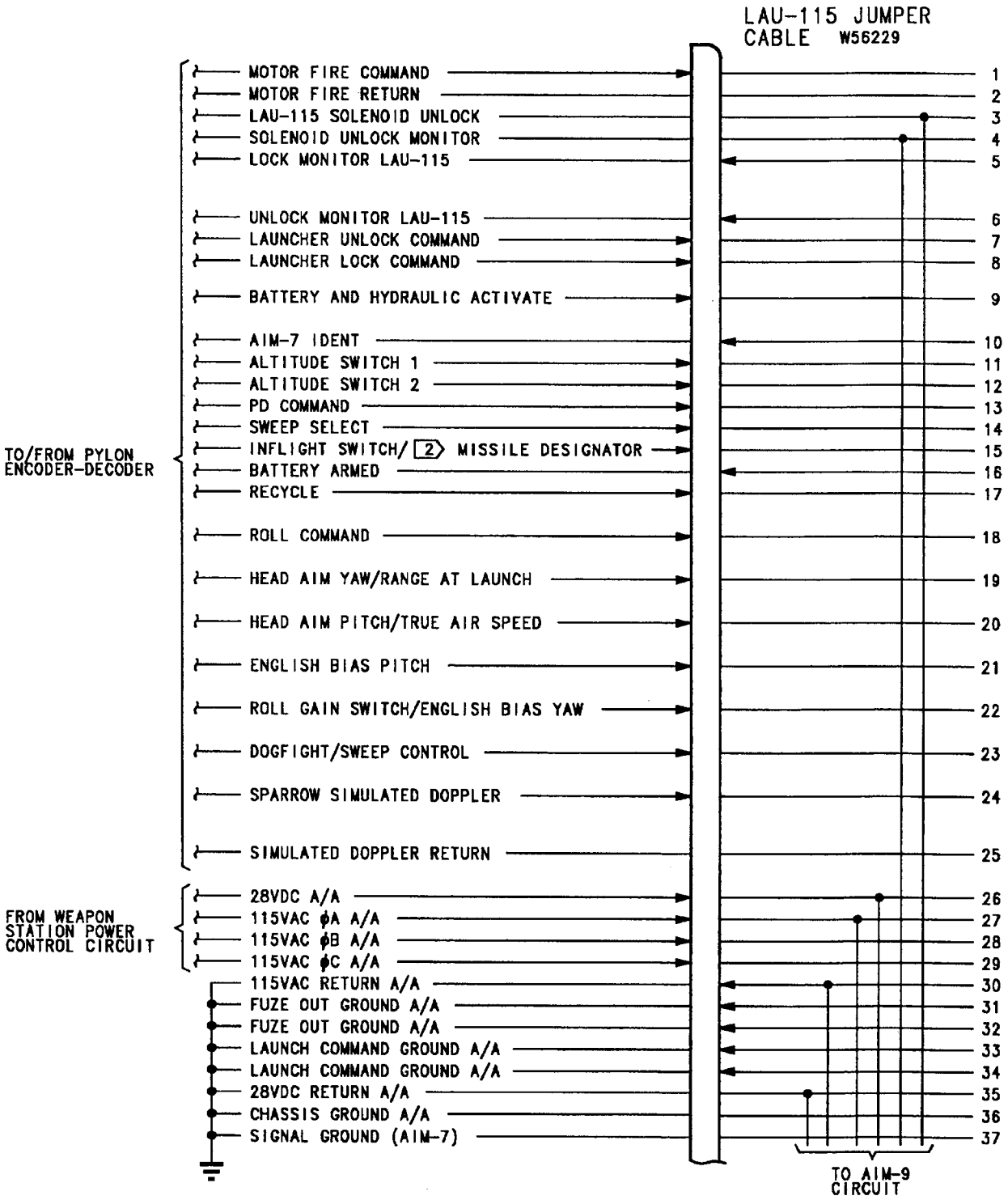


LEGEND

1 NONSTANDARD ABBREVIATIONS AND SYMBOLS, SEE WP002 01.
2 WEAPON STATIONS 2, 3, 7 AND 8 AIM-7 (PYLON).
3 WEAPON STATIONS 4 AND 6 AIM-7 (FUSELAGE).

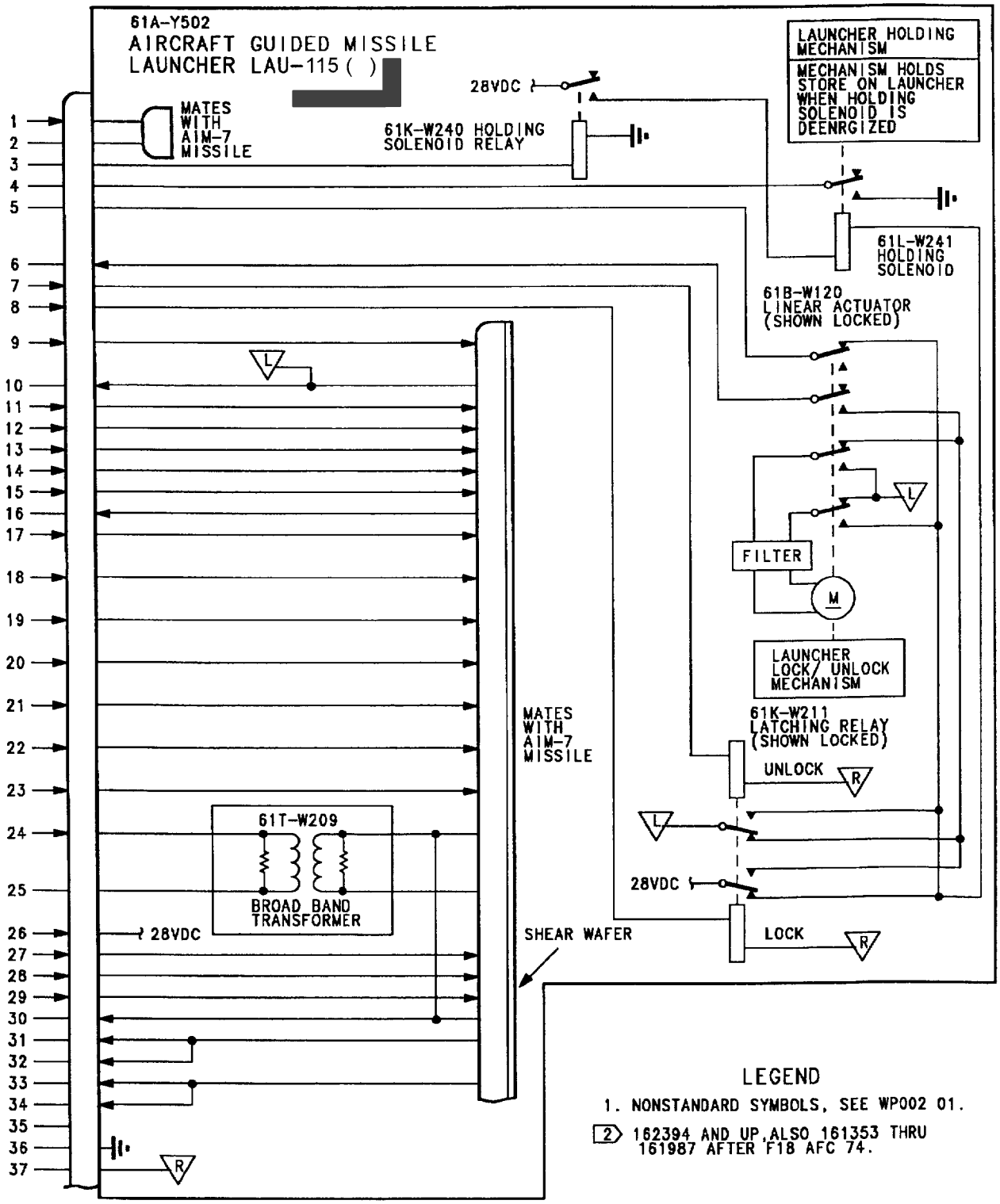
04900204

Figure 2. AIM-7 Sparrow Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 4)



04900301

Figure 3. AIM-7 LAU-115 Launcher Simplified Schematic (Sheet 1)



04900302

Figure 3. AIM-7 LAU-115 Launcher Simplified Schematic (Sheet 2)

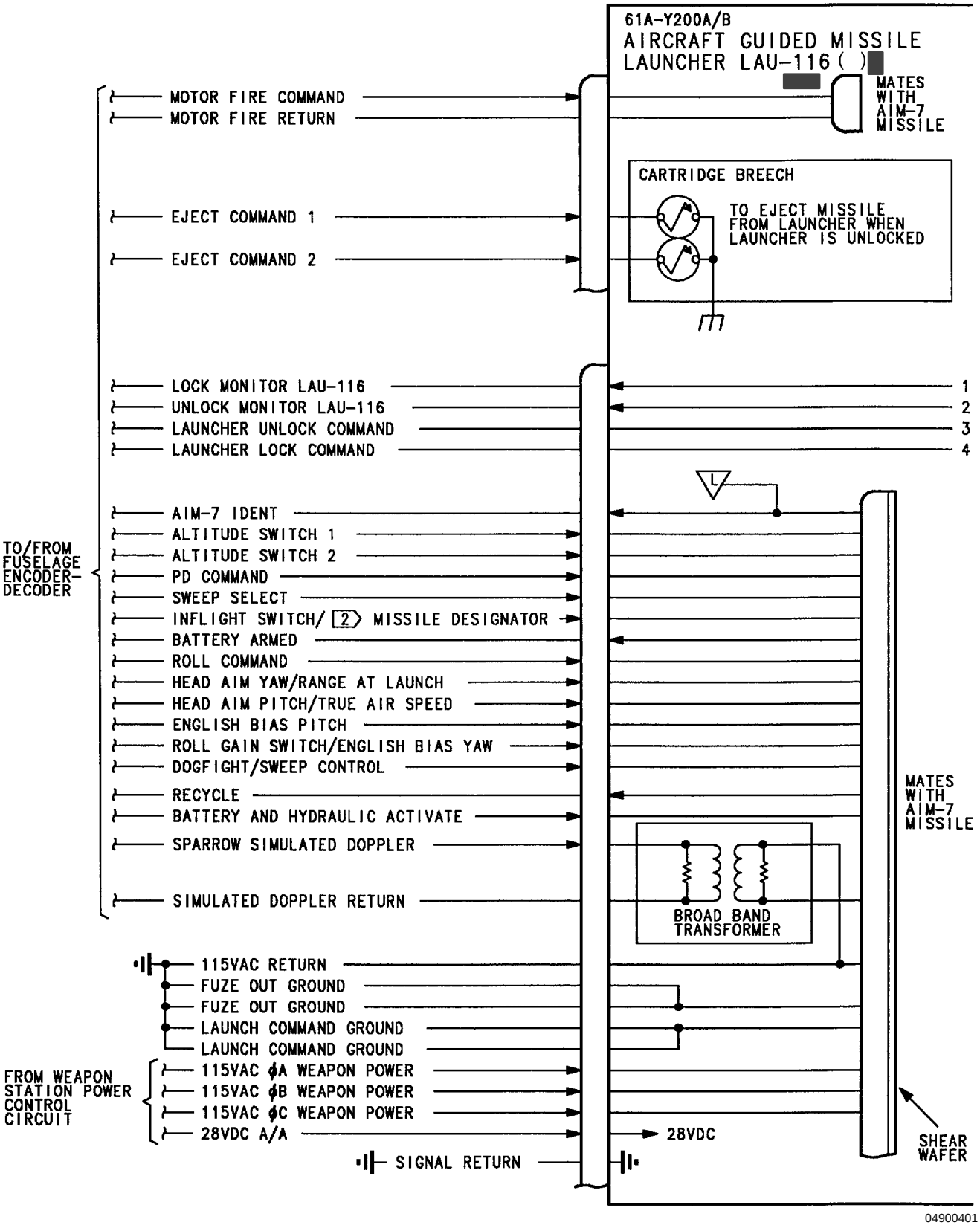


Figure 4. AIM-7 LAU-116 Launcher Simplified Schematic (Sheet 1)

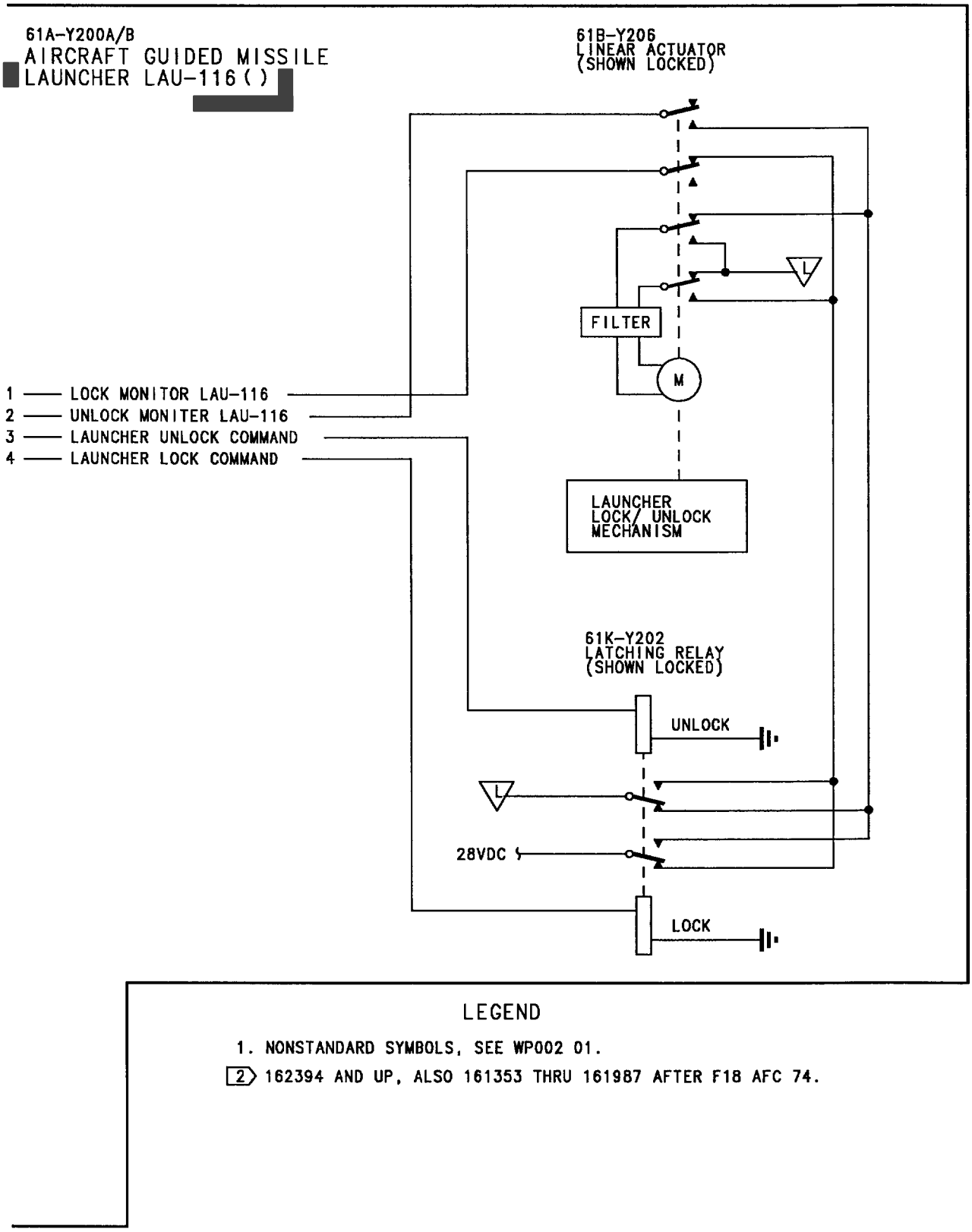
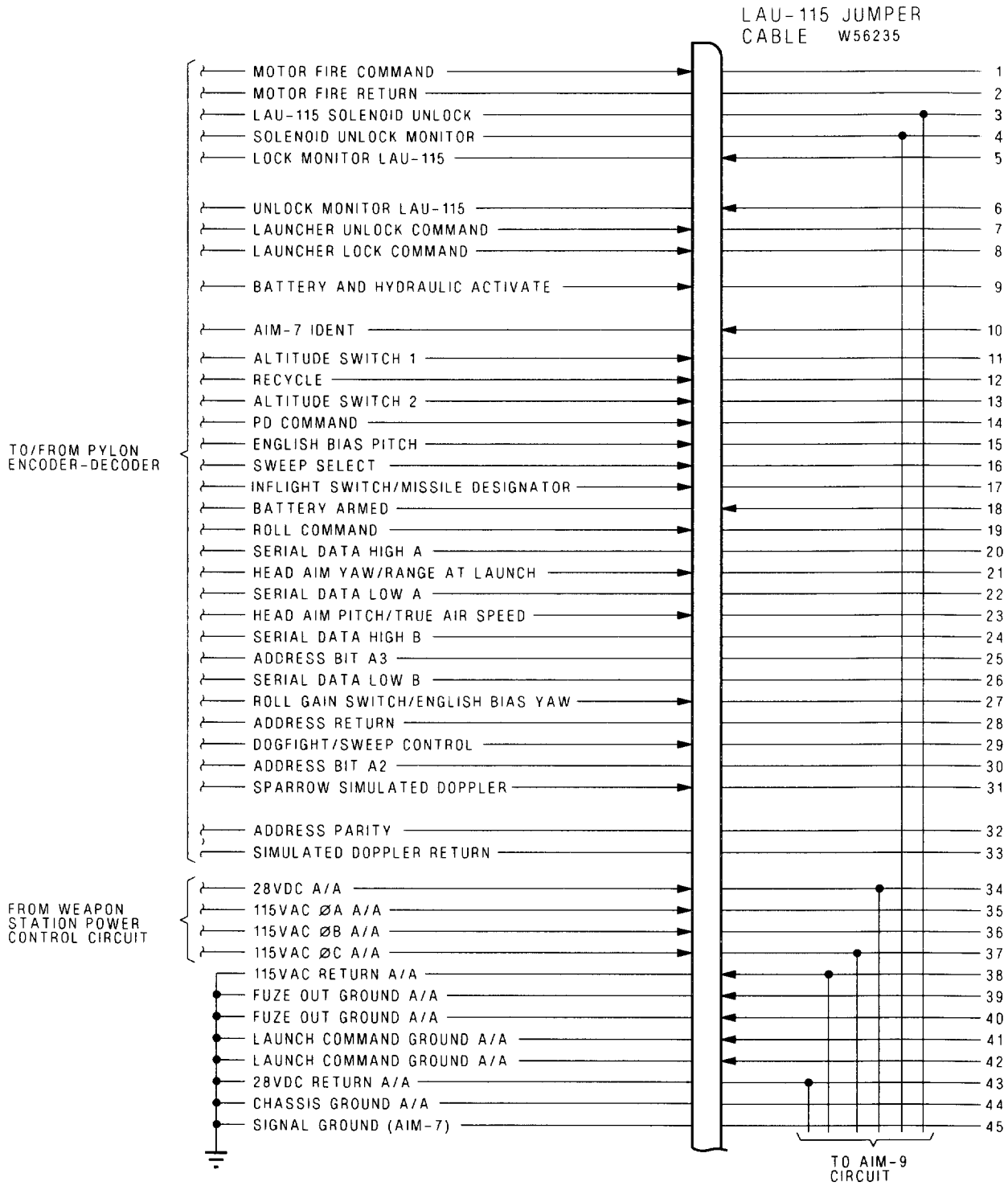


Figure 4. AIM-7 LAU-116 Launcher Simplified Schematic (Sheet 2)



04900501

Figure 5. AIM-7 LAU-115C/A Launcher Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 1)

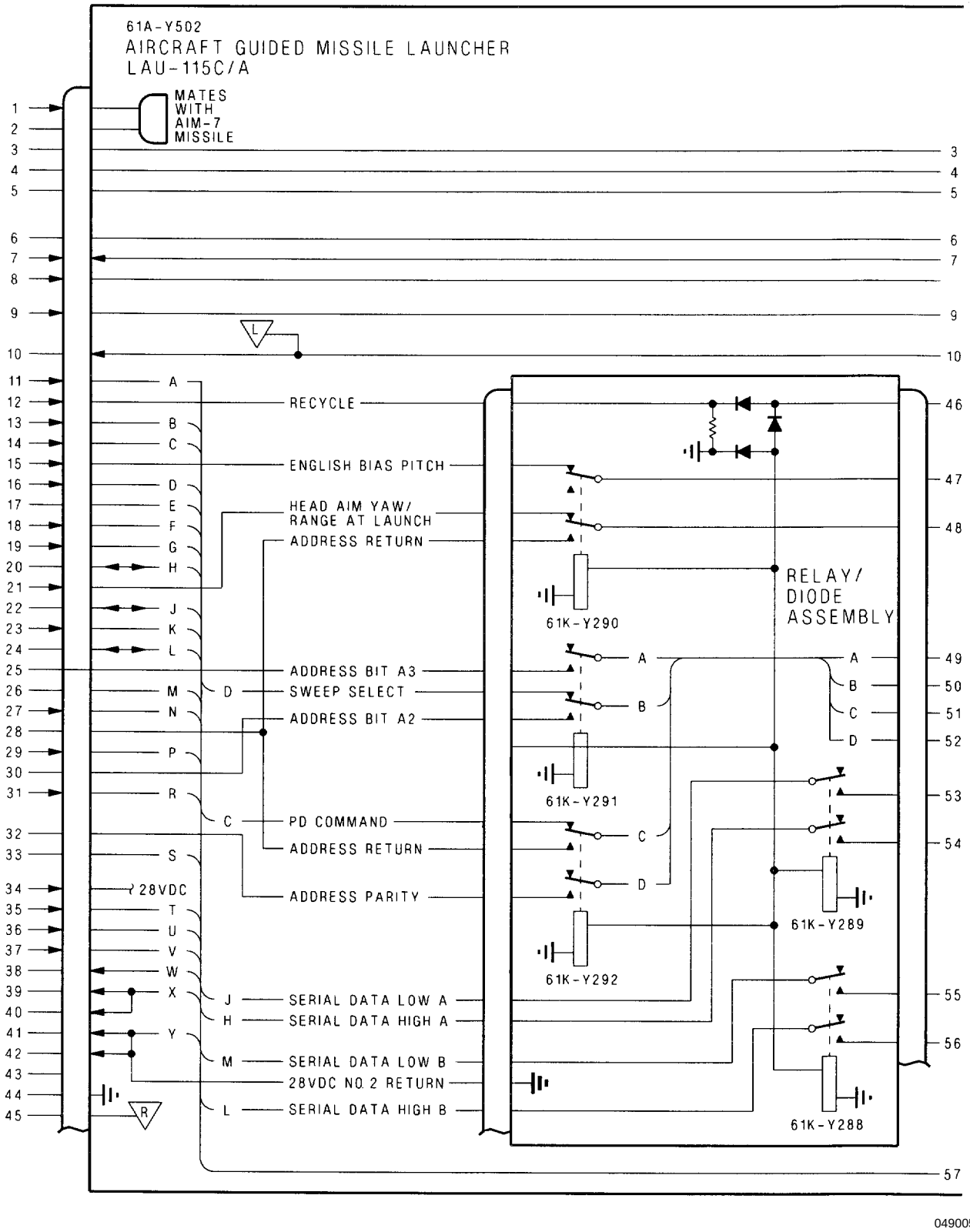
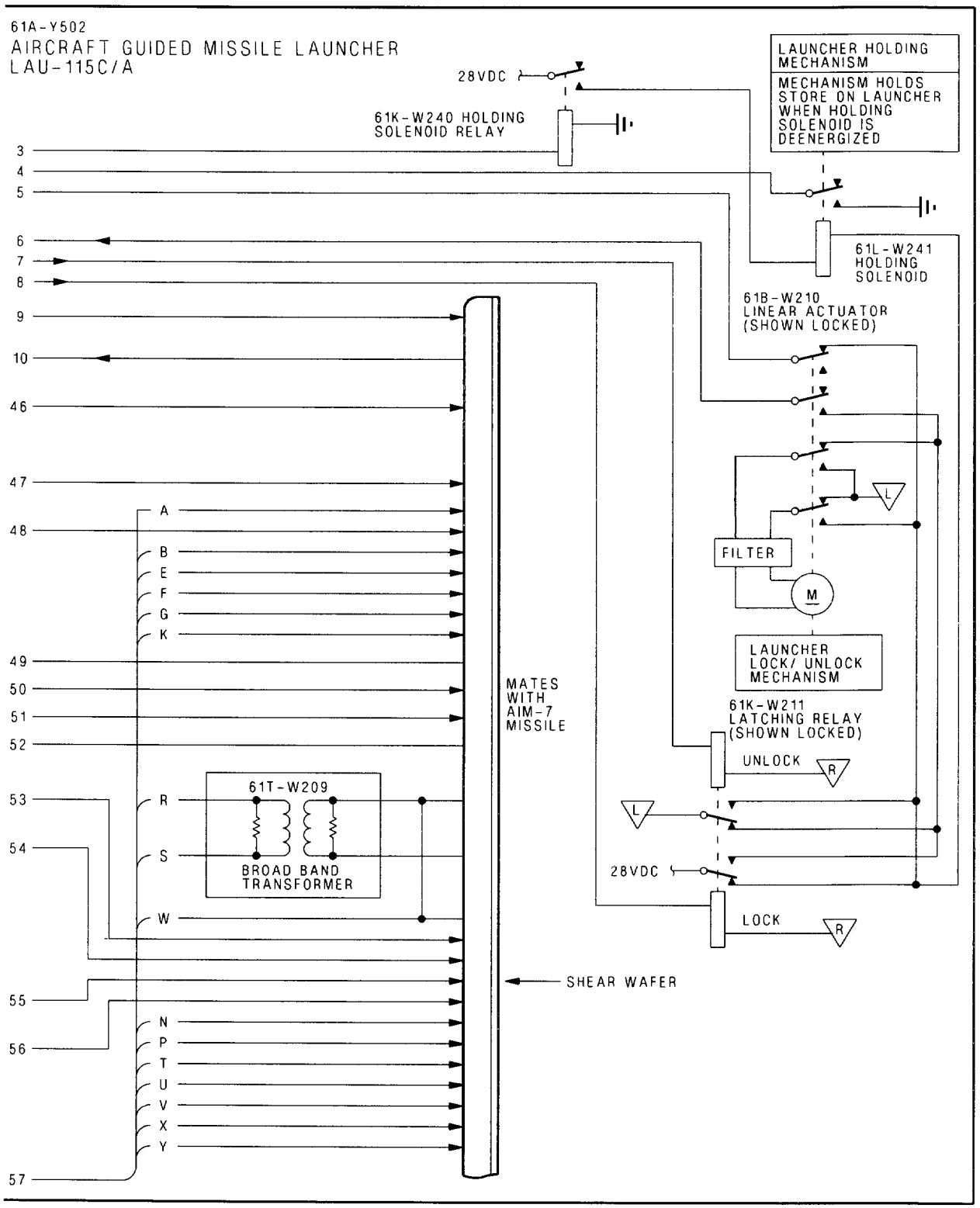


Figure 5. AIM-7 LAU-115C/A Launcher Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 2)



04900503

Figure 5. AIM-7 LAU-115C/A Launcher Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 3)

LEGEND

1. NONSTANDARD ABBREVIATIONS AND SYMBOLS, SEE WP002 01.

Figure 5. AIM-7 LAU-115C/A Launcher Simplified Schematic (AFTER AFC 253 OR 292) (Sheet 4)